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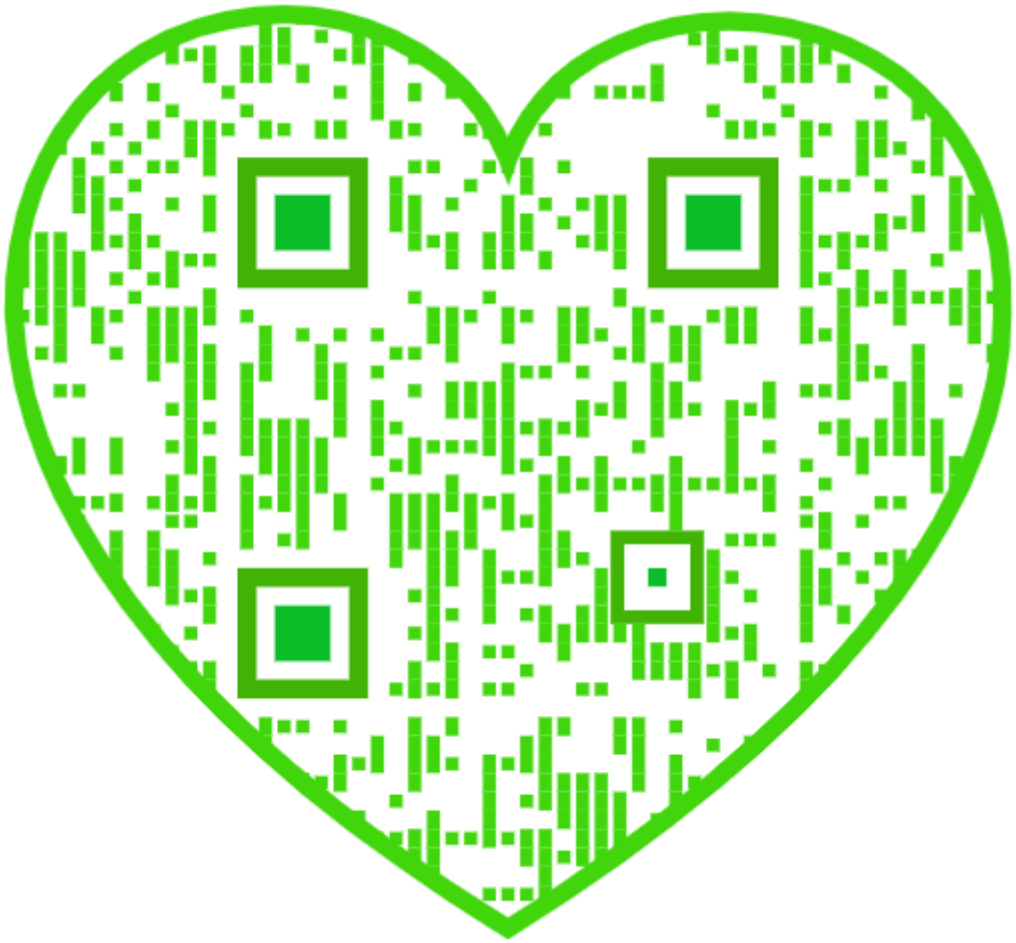

Scientific American.

THE ADVOCATE OF INDUSTRY, AND JOURNAL OF SCIENTIFIC, MECHANICAL, AND OTHER IMPROVEMENTS.

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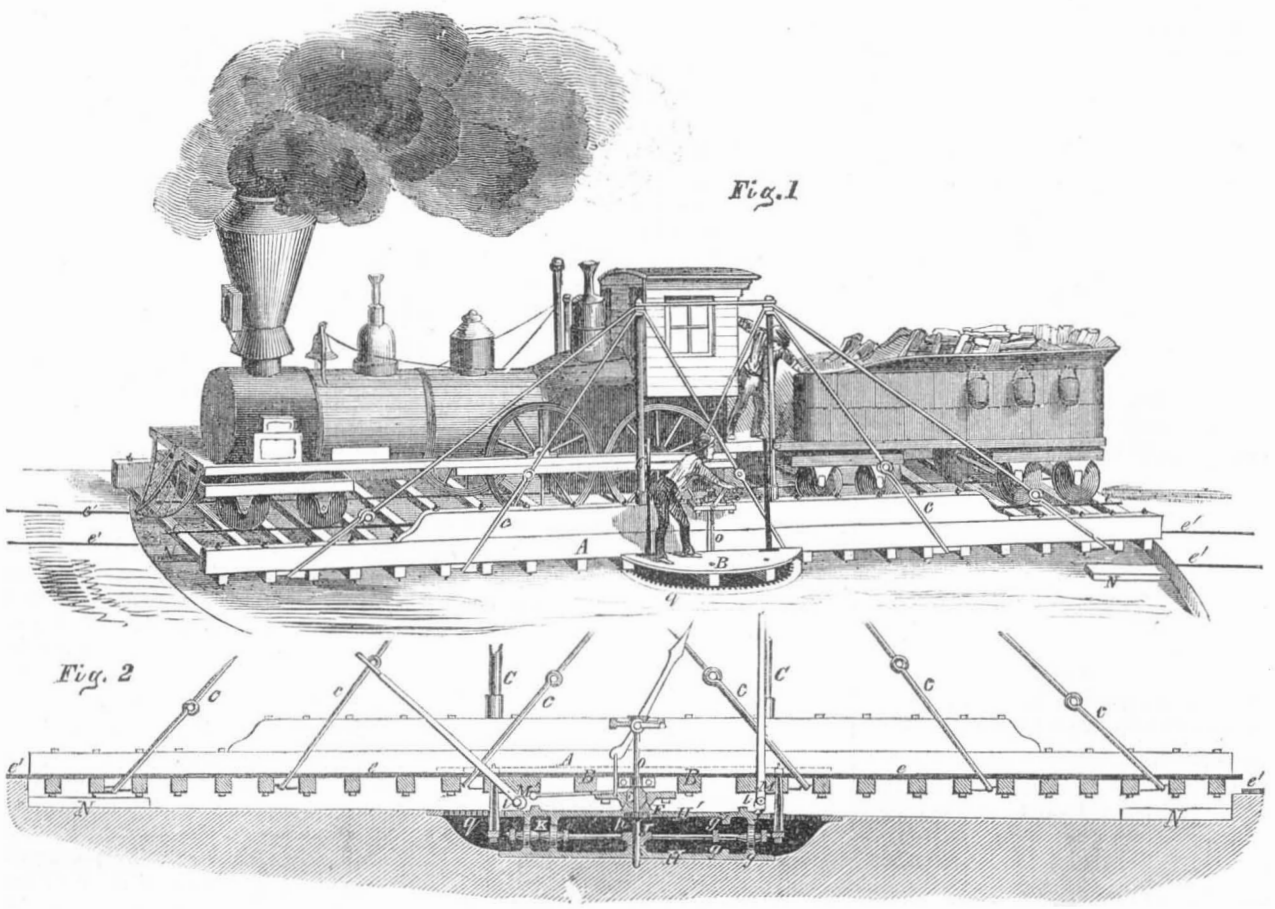
ROBIE'S BALANCE TURN-TABLE.



Improved Turn Table.

The accompanying engravings represent an improvement in Turn Tables for railroads, for which a patent was granted on the 15th of last month to J. C. Robie, of Binghamton, N. Y. The nature of the invention consists in balancing the platform of the turn-table upon a transverse central shaft or other suitable axis resting upon the roller carriage in a line intersecting the line of the axis upon which the turn-table rotates, in such a manner that the table, when in an horizontal position, is elevated or has its rails above those of the track, to admit of the free swing of the table over its under supports or bearings, and so that the table may be rocked with facility from its center, or tilted to bring the ends of its rails on either side of the balancing shaft into line or level with the rails of the track.

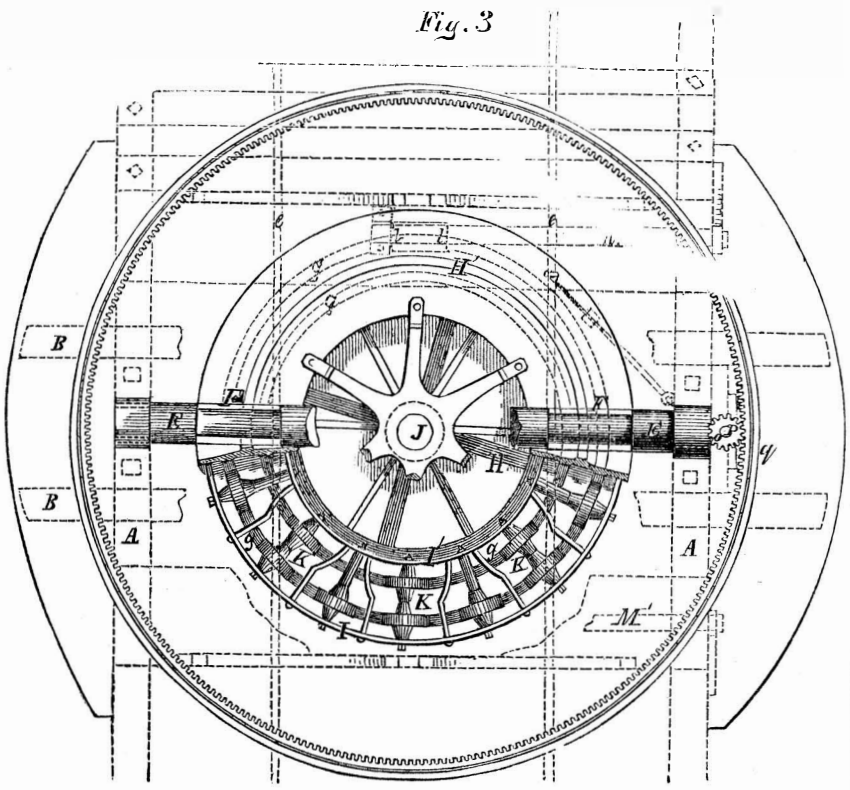
It consists also of holding the table steady at at its horizontal set whilst rotating, and tilting or depressing it on either side of the balancing axle when required, by means of cams or eccentrics arranged to bear upon the roller carriage, and operating in connection with the roller carriage and table, as will be described.

In figure 1 a locomotive with its tender is shown upon the turn-table, and it is being turned round by the attendant; *e e* are the rails on the platform of the turn-table, and *e' e'* those of the track. Figure 2 is a longitudinal vertical section through the center, showing the left hand end of the platform depressed upon its bearings and ready to receive an engine or car. Figure 3 is a plan view. The same letters refer to like parts.

The platform of this turn-table is constructed in a similar manner to that of some others now in use being composed of longitudinal timbers, A A, and sills, B B, which are secured by bolts and plates. The sills form the floor on which the rails, *e e*, are laid; C C are posts and *c c* tension rods to support the platform and prevent deflection. There are also short timbers bolted under the center of the sills and sleepers. E is a horizontal shaft placed under the center of the platform with its end firmly secured in the side longitudinal timbers, A. The platform forms a balance, of which this shaft is the axis. F F is a bearing running across the roller carriage below, for properly supporting the shaft, E, and the sleepers for the rails, *e e*.

The carriage underneath for turning the platform consists of the bottom and top plates, H H', a center pin, J, the two metal rings, I I', and the rollers, K K. The bottom and top plates of a turn-table of the largest size to carry an engine and tender of from 40 to 45 feet in length, require to be only about 8 feet in diameter. The bottom plate, H, has two circular raised tracks, *g g*, and is bored to receive the center pin, J. It rests upon a foundation of masonry about three feet below the rails, *e e*. This foundation is very small in comparison with that of the common turn-table provided for rollers near the outside of the table. The rollers, K K, are fitted loosely upon axles, and with a collar between each pair; their axles support the two rings, I I', which keep them in position to run on the circular tracks, *g g*. The inner ring is connected with a plate or armed hub, bored through the center for the vertical pin or spindle, J, to pass through and keep the two rings concentric with the axis on which the table rotates. The top plate, H', is of the same size as the bottom one, H, and the two circular tracks, *g g*, are on its under side and rest upon the rollers, K K. The center pin, J, is firmly secured to the top plate, H', and passes through the bottom plate which has a deep socket. The boxes, F F, of the shaft, E, of the platform, rest upon and are secured by bolts to the top plate, H', and so placed that the axis of pin J, if continued upward, would cut the axis of E.

At equal distances from, and parallel with shaft, E, are two shafts, M M', whose ends have journals fitted to work in plates attached to the sides of the platform. The portions of these shafts included between the dotted lines, *l l*, fig. 3, are larger than the rest, and



they are made eccentric to the journals. Upon the top side of the upper roller plate, H', are two raised pieces which form bearings for the eccentric parts of M M' to rest upon.—Each of these shafts has a lever attached at its outer end, as shown in fig. 2, which can be turned to bring the projecting part of an eccentric into position so as to be free from the bearing part on plate H', below, to depress the platform, as shown at the left hand, or *vice versa*, to elevate it at the back end, to let the engine on or off the track;—also, to elevate the whole platform about an inch above the bearing pieces, to turn round the table and engine. The depressed end of the platform always rests on solid fixed bearing pieces, N N, so as to support the platform under the rails directly below the weight. The turn-table is caused to rotate in the usual way by a pinion, P, which is fixed on a vertical shaft O, attached to the platform, and it gears with a circular toothed rack, *q*, which is secured to the foundation work, as shown in fig. 1. There is an indicator on the platform, with a pointer and an index to show the engineer the position of the platform, so as to move the engine or car, and bring the platform to a state of equipoise. The eccentric shafts are employed to cant the platform up or down at either end, to keep it on a level above, or on a line with the track. The rise in the platform by the eccentrics above the bearing pieces, N N, requires to be very small, not above an inch in a full-sized turn-table. The rollers support the table, and the platform is so nicely balanced on its central shaft, E, that it requires very little power to move it. This turn-table possesses the same strength and stability as those in common use, and it may be constructed at less expense. It is now in successful operation on the Coburg and Peterboro' R.R., in Canada West, and on the Ohio and Mississippi R.R. J. Spaulding, Engineer and Superintendent of the C. and P. and Ontario Railroads, says, "it may be turned with a 30 tun engine upon it in one minute by a boy twelve years of age, and it obviates many difficulties in the common turn-table. I believe it to be preferable to any plan I have ever seen, and recommend it to the favorable notice of engineers and railway companies."

More information respecting it may be obtained by letter addressed to Mr. Robie, at Binghamton, who has also obtained for his invention, through our Agency, patents in Great Britain and France.

A French gardener has discovered that by painting his hot-houses with gas tar all the insects, so destructive to plants and fruit, die.

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On the Position of Fire Places.

As the cold season is approaching and fuel being unusually high in our city and other places, it is wise to make the inquiry, "can we not do with less than we have been in the habit of consuming?" We believe this will be quickly answered in the affirmative, after reading the following article by Dr. Neil Arnott, F. R. S., it being the subject of a paper read by him before the London Society of Arts, and recently published in the Society's Journal:

"This is the fit place for remarking on the fashion, lately introduced in this country, of placing the fire-grates much lower down than formerly—in some cases, on the very hearth: the reasons usually assigned being that a low fire burns better, or gives out more heat from the same quantity of fuel, than a higher; and, because lower and nearer the floor, that it must warm the carpet better, and so lessen the evil of cold feet. Now, both these suppositions are curious errors or delusions, having their origin in popular misconceptions respecting the heat, and particularly respecting the radiation of heat.

Radius is the Latin word for the spoke of a wheel, and anything which diverges or spreads around from a center, in some degree like spokes, is said to radiate. Light and heat are of this nature; the portion of either which passes in a straight line from the center is called a ray.

The simplest observation teaches all that a lamp placed in the middle of a room radiates its light and heat nearly equally in all directions; and most persons are aware that if an opaque mirror be placed close to a lamp on one side, it not only intercepts all the rays that fall upon it—and that means nearly half of the light given out—but it returns or reflects these rays back in contrary corresponding directions, and nearly doubles the illumination in those directions.

Most persons, also, have observed that if a fire, or a red-hot mass of metal, be placed in free space, it radiates its heat as well as its light nearly equally in all directions; but many do not learn, by their unaided observation, that if a surface of any substance, like fire-brick, which strongly resists the passage of heat through it, be placed near a fire, it not only intercepts the heat-rays falling on it, but after absorbing them, and so becoming heated, often to redness, it then reflects and radiates back the greater part of the heat, almost as if it were additional hot fuel in the fire, and thereby nearly doubles the warmth felt in directions away from the surface.

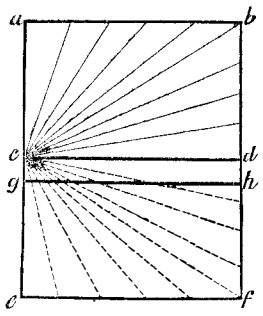
Neither does common observation make persons aware of the truth, that of the heat produced by combustion in a common fire, one part—being somewhat more than half—is diffused, like the light, by radiation, into the open space around, and the remainder is given, by contact and conduction, to the air which supports the combustion, and to the solid material of the fire-place. Thus, with a common open fire-place, it is the radiant heat almost alone which warms the room, the remainder either at once combining with the burned air or smoke, and passing up the chimney, or being given by the heated grate to pure air, which touches that, then passing into the chimney with the smoke.

And, lastly, many persons do not at first learn the truth, that the rays of heat passing through pure or transparent air do not at all warm that air, but warm only the solid or opaque bodies by which the rays are intercepted, and that thus the air of a room is warmed only at second-hand, by contact with the solid walls and furniture, which, having intercepted the heat-rays, have themselves first become heated. Yet most educated persons know similar facts, such as that the sunbeams, bringing both light and heat to the earth, as they descend to warm the hottest valleys or plains of the earth, pass through the upper strata of the atmosphere, which are always of a temperature much below freezing. This is proved by the fact that all lofty mountains, even under the equator, are capped with never-melting snows, and that the higher the peaks are—and, therefore, the nearer to the sun—the colder they are. Thus also, all persons who have attended to the subject know that aeronauts, in their balloon-car, if they mount very high, would be frozen to death but that they are protected by very warm clothing. Another fact of the same kind is, that a glass globe, filled with cold water, or even ice, may in the sun rays be used as a burning-lens.

These explanations being premised, the two popular delusions respecting the low fires become at once apparent.

1st. The supposition that fuel burnt in a low fire gives out more heat, has arisen from the experimenter not reflecting that his hand held over the low fire feels not only the heat radiated from the fire itself, but also that reflected from the hearth close beneath it, which second portion, if the grate were high, would have room to spread or radiate downwards and outwards to the more distant floor or carpet, and so warm them.

2nd. The notion that the fire, because near the floor, must warm the carpet more, springs from what may be called an error in the logic of the reasoner, who is assuming that the hearth, floor, and carpet, being parts of the same level, are in the same predicament—the truth being, however, that in such a case the hearth within the fender gets nearly all the downward rays, and the carpet almost none—as a candle held before a looking-glass at a moderate distance diffuses its heat pretty uniformly over the whole, but if moved close to one part of the glass, it overheats, and probably cracks that part, leaving the rest unaffected. A low fire on a heated hearth is to the general floor or carpet of a room nearly what the sun, at the moment of rising or seting, is to the surface of a field. The rays are nearly all shooting upwards from the surface, and the few which approach it slant obliquely along, or nearly parallel to the surface, without touching, and therefore without warming it.



The annexed diagram serves to elucidate these facts.

c represents the fire-place or center of radiation, with rays diverging from it into all free space around.

a c is the wall in which the grate is set, and which can receive none of the direct rays—as is nearly true of the floor also, if the fire be on the hearth.

a b is the ceiling.

b d is the wall opposite to the fire.

c d is the floor, with the fire on or close to the hearth. If there were no floor at all, these rays would shoot as abundantly down to the bottom and walls of the room below, as to the ceiling and walls of the room above; but the hearth-stone of the floor, *c d*, first intercepts all the inferior rays, and then radiates them up to the ceiling, leaving the floor unsupplied, unless by secondary radiation from the ceiling and walls.

g h represents a floor at a moderate distance below the fire. It is seen, by where the ray-lines intersect this floor, that much of the heat of the fire must spread over it, and chiefly between the middle of the room and the grate where the rug is, and where the feet of the persons forming the fireside circle are placed.

Striking proof of the facts here set forth is obtained by laying thermometers on the floors of a room with a low fire, and of a room with the fire, as usual of old, at a hight of about 15 or 16 inches above the hearth. An experiment tried in two such rooms, in both of which thermometers on the pianofortes, four feet above the floor, stood at 62°, showed the carpet, not far from the hearth, to be at 56° with the low, and at 73° with the high fire.

As would be anticipated by a person understanding the subject aright, low fires make cold feet very common, unless to those who sit near the fire with their feet on the fender; but deceived by their fallacious reasoning, the advocates are disposed to blame the state of their health or the weather as the cause, and they rejoice at having the low fire, which can quickly warm their feet when placed near it. A company of such persons seen sitting close around their fire, with thankfulness for its warmth near their feet, might suggest the case of a party of good-natured people duped out of their property by a swindler, and afterwards gratefully accepting as charity from him a part of their own property."

Discovery of the Origin of Spirit Rappings.

Dr. Schiff, of Frankfort, Germany, read a paper lately to the French Academy of Sciences, in which he professes to have discovered the mystery of spirit-rapping. His attention was called to the case of a young girl, near whose person noises attributed to spirit-rappers were produced. Dr. Schiff's observations led him to conclude that the knocking had taken place within the body of this young girl, not outside; and he has shown experimentally that such noise can be produced by the reiterated displacement of the tendons of the long muscles of the shin bone, from the sheath in which it glides in passing behind the external ankle bone.

The Doctor must be awarded the palm along with Faraday, who discovered the cause of table turning. The Spiritual Rappers, however, claim that they can turn tables without touching them, and certainly all their rappings cannot be produced by shaking the muscles of the shin bone.

Interesting Experiment.

At the London Polytecnic Institution, a new experiment of a beautiful kind, the invention of a French philosopher, is now being exhibited. It consists in the illumination of the interior of a jet of water, emitted horizontally, and falling into a curve. The light, which is of great brilliancy, and produced by galvanic agency, is applied at the back of the jet. It seems to be wholly absorbed, and bent out of its lateral rectilinear direction by the falling stream of water, every part of which is rendered perfectly luminous, Even the glass vessel into which the stream falls is occasionally illuminated. By placing various colored glasses between the light and the water, the jet is made to assume the most beautiful hues.

Georgia State Fair.

The Ninth Annual Fair of the Southern Central Agricultural Society will be held in Augusta, Ga., commencing on the 23rd of next month, October. The Managers of the Society, and the citizens of Augusta have adopted very praise-worthy arrangements for the treatment of strangers who may visit the Fair. The *Southern Cultivator* gives the charges of all the hotels in Augusta, the proprietors of which have pledged themselves not to charge more than the usual rates to strangers. This is very different from the proprietors of hotels in some of the cities in this State, where Fairs have been held. A committee of citizens has also been appointed to aid visitors in obtaining lodgings. We like these arrangements exceedingly. The Fair will be held for six days; we hope all Georgia, young and old, will go up to Augusta in the last week of next month.

The Caloric Engine.

The Caloric Engine invented by Capt. Ericsson has been finally abandoned, and is to be taken out of the ship bearing his name, steam boilers being substituted. From the beginning this result has been foreseen by practical and scientific men, notwithstanding the alleged complete success of the experiment. —[United States Gazette, Phila.

[There is no doubt of the fact, that *some* practical and scientific men foresaw the result above named from the beginning, but so far as we are acquainted with the facts few had the courage to give a public expression to their views. The columns of the Scientific American contains nearly all the objections against the "hot air project," which have been published, and of their soundness the public can now judge.

Death of a Man of Science.

Dr. Robert M. Patterson, late director of the U. S. Mint, died at Philadelphia on the 5th inst. He was President of the American Philosophical Society, and had held professorships in the Universities of Virginia and Pennsylvania.

Explosions of Steam Boilers.

It affords matter for deep sorrow to hear of so many boiler explosions still taking place from time to time in various parts of our country. On the 29th ult., the steamboat *Timour* exploded her boilers on the Mississippi, whereby twenty persons were instantaneously deprived of life. This boat was lying at the dock when the explosion took place, and the St. Louis papers say that "there was little steam, no water, but any quantity of gas in the boilers, as the appearance of the wreck, and the burned and crisped bodies of the victims too plainly showed. The shock was awful; all three boilers going off at the same instant, and not a fragment of either ten feet in length could be found."

On the same day the boiler of the locomotive *Mississippi* exploded on the Mobile and Mississippi Railroad, whereby one person was killed and several severely wounded. The *Mobile Tribune* says "the cause of the catastrophe is not yet explained, and probably never will be, as the person in charge of the engine was the first to lose his life."

New Water Meter.

Marvin Smith, of New Haven, Conn., has invented an improvement in water meters, of that class which registers the number of strokes made by a piston, which is moved to measure the water in a cylinder of known capacity. The object of the improvement is to effect the reversal of the movement of the piston in a simple manner, without the employment of valves. The piston is so constructed that a slight movement on its axis is all that is necessary to reverse the action of the water upon it. A movement is given to the piston at the end of every stroke, to move it on its axis. The registering of the number of times the cylinder is filled and discharged is accomplished by clock work, constructed for the purpose, in connection with the movements of the piston. Measures have been taken to secure the invention by patent.

Bates' Instrument for Curing Stammering.

The patentee of the instrument for curing stammering, whose engravings were published in No. 47, last Volume of the Scientific American, desires us to state, in reply to numerous letters he has had concerning agencies, that he employs no agents to sell his instruments, and that those desiring to purchase or to have them applied, should address him at his residence, 131 South Ninth street, Philadelphia.

Guano made from Fish.

A manufactory exists in the Department of the Finistere, France, where a fertilizing powder is made from fish. The fish undergoes a kind of cooking by steam, after which it is dried and pulverized. It requires 455 pounds of fish to produce 100 pounds of the powder, which forms an admirable manure.

The First Man Struck by Lightning in California.

"During the thunder-shower last Friday," says the *Shasta Courier*, "Mr. Hugh Mackay, while standing before his residence, on Dry Creek, was struck by lightning and thrown upon his face with great violence, a distance of some ten or twelve yards from where he was standing. He remained insensible fully an hour after receiving the stroke. He has since almost entirely recovered. This is the first instance of the kind we have ever heard of in California."

An experiment has just been successfully made in France of employing swallows to carry letters, as pigeons were used some years back.—[Exchange.

[Foolish operation, in these days of the lightning telegraph.

Our New Dress.

The Scientific American commences this volume in an entire new dress of beautiful type.

The editor of the *Providence Post*, L. I., recommends beets, baked in the peel, as people bake potatoes, as a substitute for that scanty and often rotten vegetable.

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The Smithsonian Institute in England.

The controversy in relation to the Smithsonian Institute has attracted some attention in England, where the interest in the distribution of the income of Smithson's bequest is almost as great as in this country, Mr. Smithson having been a native of that country. He had never visited this country, but entertaining high hopes of the ultimate results of the free institutions and great social equality of this country upon the elevation of the human race, he left the whole of his property—about £110,000—"to found at Washington an institution for the increase and diffusion of knowledge among men." It must be evident that the countrymen of the donor have a contingent interest in the application of this fund, and it is not surprising that they should protest carnestly against such an application thereof as would confine its benefits to those only who may have the leisure and the means wherewith to visit the capital of our country.

We find in the London *Illustrated Crystal Palace Gazette* an able article upon the manner in which the funds of Smithson have been applied. The writer says:—

"Nothing more novel in the way of agencies for increasing and diffusing knowledge among men could be devised than an institution lodged in a large building, containing a library, a museum and a lecture room, the whole being under the control of a sort of epicene commission, part legislative, part executive, half local, half national."

"One of two results was sure to follow such an organization—either the governing board would sink into a mere formal body to record and sanction the acts of the executive officer, who would become the real head and soul of the institution, or the executive officer must sink into the mere tool of his official superiors, carrying out with indifferent zeal the most opposing views, as one policy or another happened to prevail in that body. The latter alternative would only happen in the case of an inferior man being chosen as the executive officer, for the intelligence and zeal of a man fit for the station, who should devote his whole mind and energies to the important work committed to his hands, could not long fail to carry with them the will of a deliberate body, assembled occasionally, called from their other and various pursuits to act upon matters aside from the current of their ordinary occupations."

He then pays a high compliment to the genius, integrity, and learning of Prof. Henry, and takes about the same views of how the Institute should be managed, as we have done.

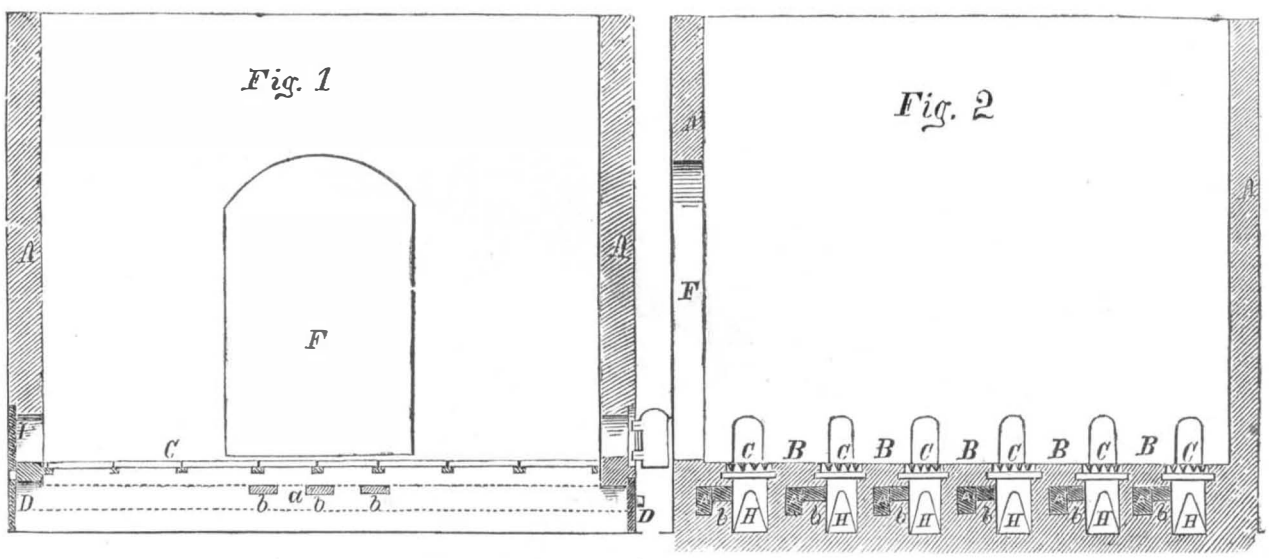
Ornamental Water Pipe.

The Philadelphia *Ledger* discribes a very grand and ornamental water pipe, just completed for the Water Works, now in the course of erection at West Philadelphia. It says: "the pipe itself, which forms the central portion or body of the tower, is 130 feet long, and five feet in diameter, is constructed of boiler plate, and firmly secured to a substantial stone foundation. The inside of this pipe communicates with the distributing main, so that the surplus water from the pumps, not in immediate requisition, ascends into the interior, thereby producing an efficient head. Surrounding the lower portion of the pipe, is built an octangular base of cut stone, so arranged that a sufficient space is left between the inside of the stonework and outside of the pipe to receive the spiral stairs, which are secured to both.

Above the stone work and surrounding the pipe are a series of cluster columns, between which and the pipe are secured the steps, together with a Gothic scroll forming a spiral staircase, which terminates in a platform at a hight from the level of the river of upwards of 225 feet. This platform is supported on ornamental brackets attached both to the cluster columns and the pipe, and is surrounded by a suitable iron railing. The cluster columns are carried upwards through the platform towards the top of the pipe, where they are connected together by Gothic arched pieces, and to the pipe by ornamental flying buttresses, the pipe itself being surmounted with a spiral of plate-iron. The whole of the structure, with the exception of the stone base, is built of iron, and forms a column of light and elegant appearance. Although not a building of very extensive and formidable character, yet, on account of the novelty of its design and the peculiar method of its construction, it is well worth the examination of the curious in such matters. It serves to show, too, how a little taste combined with mechanical skill, judiciously applied, can render an object which would have otherwise been an eye-sore to the neighborhood, both useful and ornamental.

A most varied and extensive view of the city and surrounding country, may be obtained at the expense of a little exertion in ascending the spiral stairway to the platform. The suggestion of building an ornamental stand pipe, is due to Mr. Birkenbine, one of the contractors of the water works. The original design and working drawings were by Mr. H. Howson, a young engineer of Philadelphia.

IMPROVED BRICK KILN.



A patent was granted on the 4th of last July, to John S. Speights, of Baltimore, Md., for the improvement in Brick Kilns, represented in these engravings, fig. 1 being a longitudinal vertical section, and fig. 2 a transverse vertical section of the kiln. This is a coal-burning kiln, and the improvement consists in a certain arrangement of the fire grates, and air passages, whereby very perfect combustion of the fuel is obtained, and regulated at all parts of the kiln.

A A are the side walls of the kiln, which are built in the usual way. B B are broad walls resting on solid foundations, and running the whole length, and supporting the fire grates, C C, which also run the whole length. The spaces, H H, between the walls, B B, constitute the ash pits and also air passages to admit air to the fire through the grate, and are furnished with a door, D, at each end. A door, I, is also provided immediately over the fire-grate at each end thereof. In each wall, B, there is an air passage, A′, which requires to be of small size compared with the ash pits. These passages, A′ A′, extend clear through from end to end, and have each a communication with one of the ash pits near the middle thereof, by means of one, two, or three, or any suitable number of lateral openings, *b b*. These openings are not required at any part, but near the middle. The passages are furnished with doors or stoppers at each end. The kiln is filled with brick in the usual manner, through a door, F, in one side, and the raw bricks are built in arches over the grates, C C, being all supported on the walls, B B, between and at the sides of the grates, and thus resting on solid foundations. When a very strong draught is required at all parts of the fire grates, or at any one of them, the doors, D D, are opened at each end, and the stoppers removed from the passages, A′A′, when a full supply of air is admitted, both at the ends and middle of the grate. When it is desired to concentrate the draught upon any part of any grate or grates, it may be done by closing one or both doors, D D, of such grate or grates, and taking out the stoppers, or by closing the stoppers and opening either of the doors, D D. When it is desired to reduce the draught at any part, either of the doors, D D, leading to any grate or grates, may be wholly or partly closed, or one or both of the stoppers put in. In this manner the combustion can be controlled in all parts of the kiln. The coal can be fed at either end of the fire grates as the case may require, by opening the proper door, I.

This coal-burning brick kiln is very simple in construction, having no arches, and the walls, B B, requiring to be made of only such bricks as are unfit for market. A copartnership has been formed between Mr. Speights and Wm. A. Siner, No, 435 North Fifth street, Philadelphia, who has used this kiln during the past eight months, and makes the following statement respecting its working qualities:—

"I have burned 1,200,000 bricks with less than 200 tons of coal at an average time of about 68 hours to each kiln. The coal used was from the Cumberland Coal and Iron Co.'s mines, and the bricks burned by it were of as rich and red color as any others produced in Philadelphia."

Communications respecting this kiln may be addressed to Messrs. Speights & Siner, at Philadelphia or Baltimore.

To Destroy House Ants.

The best way to get rid of ants is to set a quantity of cracked walnuts or shell barks on plates, and put them in the closet and places where the ants congregate. They are very fond of these, and will collect on them in myriads. When they have collected on them, make a general auto-da-fe, by turning nuts and ants together into the fire, and then replenish the plates with fresh nuts. After they have become so thinned off as to cease collecting on plates, powder some gum camphor and put in the holes and crevices, whereupon the remainder of them will speedily vamose.—[Albany Knickerbockcr.

[A very simple method of destroying these pests, is to put some sugar on a particular part of the floor, and then sprinkle some spirits of camphor upon the ants when they congregate—as they soon will—upon the sugar to enjoy a sweet repast. Camphor appears to be fatal to ants.

The Coal Fields of Russia.

"In Russia there is no valuable and unbroken coal fields, and if, in the progress of cultivation, her forests disappear, she has no mineral fuel to supply their place. There is, indeed, a coal field upon the Donetz, but it is far distant from St. Petersburg and Moscow, and it may not be of sufficient value for transportation to the Black Sea. In the carboniferous system which occupies the vast territory between the Volga and the Ural mountains, there occur only at intervals very rare and thin traces of coal."

The above is selected from the last number of the *North British Review*; article, *Murchison's Siluria*. It is a well known fact, that Russian steamers are entirely dependent on England for coal, as it is impossible for a steamship to use wood for fuel, even for a very short voyage. Russia, without coal fields, never can become a great commercial or manufacturing country. It is the coal of the United States which will yet make our Republic the first manufacturing and commercial nation in the world.

Exportation of Anthracite Coal.

We see it stated, that arrangements are in progress for the exportation to England of this important article on a large scale, and there are no great obstacles that we can see to discourage the idea. It is true that our home markets are as yet by no means overstocked with this commodity, but we are still much better off than the principal English markets in this regard, the retail price of their bituminous coal, which is far less durable, and therefore less economical than our anthracite, being at present, we are informed, $7 27, while last winter it retailed at $10 18, and will probably be still higher the coming one. In spite of the numerous conflicting opinions on the subject, we believe that there can be no reasonable doubt but our production of coal will henceforth more than keep pace with the home demand, and therefore consider that such a movement as the present cannot hurt us, while it will open up an immense field for trade.—[American Mining Chronicle.

[It is surprising to us, that the *Chronicle* does not know that there is plenty of anthracite coal in England, which can be obtained at a far lower price than that at which Pennsylvania coal is now selling here. The idea of exporting anthracite coal to England is a droll one, truly. Perhaps the Editor of the *Mining Journal* has met with some *wag* in his travels.

Artesian Well in Charleston.

The people of Charleston, S. C., deserve a great deal of credit for the enterprise and perseverance they have displayed amid so many difficulties and trials in boring for water. We understand that over 1200 feet of tubing have already been let down, and the boring is still being conducted, although with great difficulty, through a very hard sand stone, twenty-four feet of which have already been penetrated.

St. Louis Artesian Well.

An artesian well is now being bored at the sugar refinery of Messrs. Belcher, St. Louis, and has attained the great depth of 2200 feet, without reaching the pure element. Let the Charleston people think of this.

Guano and Plaster for Cotton.

In 1853 I made the following experiment with guano and plaster, on 60 acres of land: 100 pounds of guano, and 50 pounds of gypsum per acre, cost $3, total $180. The increased production was 100 pounds of clean cotton to the acre, or 6000 at 9 cents net per pound, or $540 with a profit of $360.

M. R.

Orangeburg, S. C., Sep., 1854.

The results are even more satisfactory this year.

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New Inventions.

Machinery for Making Spikes.

The manufacture of cut nails and spikes by machinery in our country, is of great importance on account of its present and fast-in creasing magnitude, We believe that the honor of constructing the first machine for cutting nails belongs to America, and extends as far back as the days of the Revolution. Since that time great improvements have been made, and owing to the vast amount of nails which our people require for building, &c., we believe that more cut nails are used in the United States than in all other countries put together. Cut nails are clipped or cut out from metal plates by reciprocating knives, and are not made tapering. The machinery referred to in the above caption is for making square nails, or spikes, tapered on all sides and drawn to a point, and for which a patent was granted to John Wootton, of Boonton, N. J., on the 29th of last month. Hitherto, such formed nails or spikes have been made with one set of die rolls, and in general have not been perfect in form, the sides being feathered. In the improved machine there are two sets of die rolls ; the one set forms the spike with its taper, and the other set takes it from the first and finishes it, smooth and tapering. Every improvement in the manufacture of spikes is of great importance to our country.

Perry's Breech Loading Rifle.

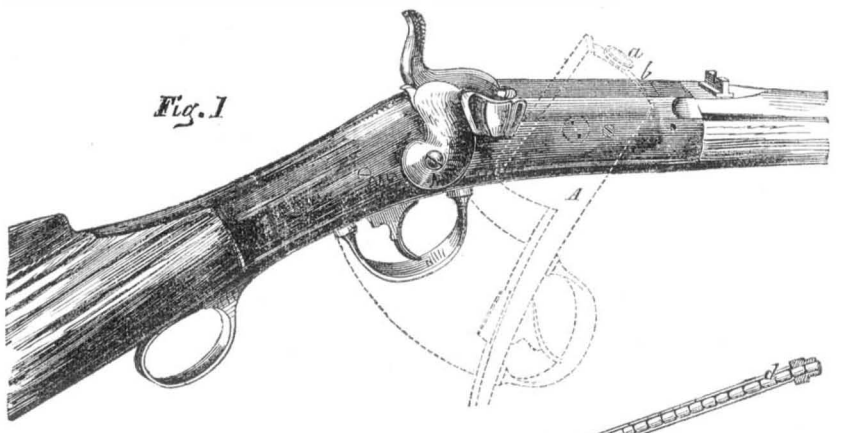
The annexed engravings represent the breech-loading fire arm of A. D. Perry, which is now manufactured by the Perry Patent Fire Arm Co., Newark, N. J. Figure 1 is a side elevation ; fig. 2 is a vertical longitudinal section, and fig. 3 is a section of the capping tube.

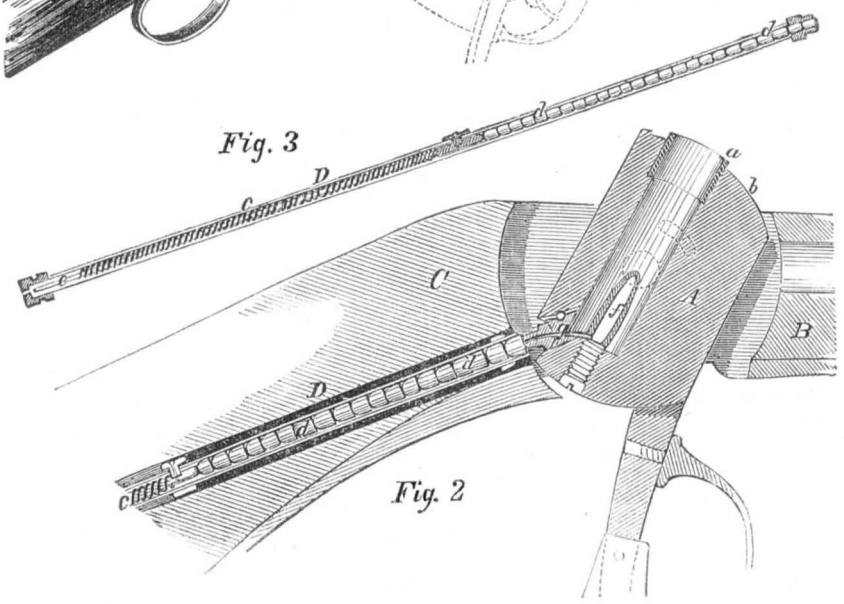
The peculiarity of the breech-loading fire arm consists in the combination of a vibratory charge holder, A, working on an arbor in a socket, and moving in a circle ; a magazine or tube in the breech for fifty percussion caps, a piercing cone, *f*, in connection with the exploding nipple, which introduces the fire to the center of the cartridge, giving instant explosion thereto ; and also of a tube, *a*, forming an adjustable gas joint with the barrel, and so arranged as to be self-cleaning in the joint, which prevents any obstruction by rapid firing ; all combined so as to introduce each charge separately and without breaking the cartridge, at the same time placing a single cap, as required, on the nipple,

A is the swinging charge holder ; it moves in a circle, being hung on pivots, as shown in figure 1, so as to swing up, to load, as shown by the dotted lines, and also to be swung into place for firing by a lever. B is the barrel ; C is the stock, and D is the cap tube, which is filled with caps, *d*. The charge chamber has a small muzzle tube or thimble, *a*, on its outer end, and a piercing cone, *f*, on its inner end. This piercing cone has a hole through its center, in communication with the orifice of the cap nipple, *g*. The charge holder is now in position, fig. 2, to be loaded, the cartridge is pushed down so that the cone, *f*, pierces and runs up into it. It will therefore be observed, that when the cap is struck the charge will be ignited at the center, and the powder will burn in all directions, igniting all the grains of powder before the ball leaves the muzzle. This is stated to be one reason of the superior force of the ball projected by this fire arm.

The cap tube, D, has a coiled spring, *c*, secured on a small spindle, *e*, and it can be drawn out and filled with the caps, *d*, during which operation a small catch on the end of the spring is held in a notch in the tube, (after the spring is forced down) to allow the caps to enter, and then the tube is pushed into its recess in the stock, C, and the small catch on the back end of said tube, is buttoned to the stock plate. The coiled spring, *c*, continually presses the caps forward, but it is only when the nipple, *g*, is brought down to the position shown, that a cap can be thrust on it, and out of its tube. It is therefore a very safe loading fire arm. By turning the spindle, *e*, to the one side, (it projects out of the tube when the spring is pushed down) the catch that holds back the spring, *c*, is released, and its tension is exerted to feed forward the caps.

The thimble, *a*, on the outer end of the charge chamber, makes a tight gas joint with the butt end of the barrel, B. The edges alone of this thimble (forming the end of charge chamber) fit close against the barrel, and not the whole ball joint of A. The scurf formed by the burning of the powder is rubbed off the edges of the barrel, *a*, every time the swinging holder is turned up, so that the joint is always kept clean. A small space *b*, around the charge thimble, receives the scurf and black scale of the powder, and it is blown out by a small hole on each side, and one at the bottom. This allows the vibratory holder to be always moved with great ease, and prevents it from binding. The charge chamber is a little larger than the bore of the

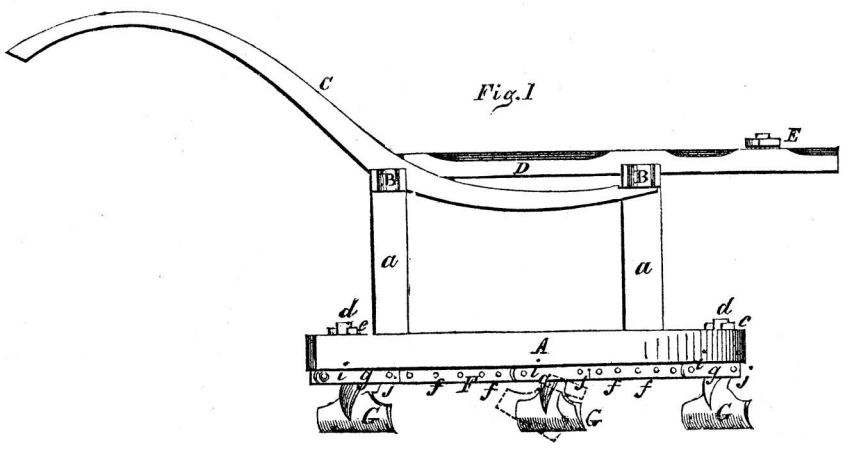




barrel, so as to prevent windage, and give the same advantage as the Minie ball does to muzzle loaders. It can also be charged with powder and patch, and no cartridge used, if desired, as this breech chamber is loaded like a common shot gun, We are assured by the Company, that this rifle possesses "one-third greater penetrating power, with one sixth less powder than any muzzle loading one.—A ball fired from this rifle has penetrated through a target composed of 18 pine boards —each one inch thick, and an inch apart—at a distance of eighty yards." It has been tested by a board of officers at Washington, and a number are recommended to be put into the service immediately. A patent was obtained in 1849, and application has recently been made to secure another for it as improved.

More information may be obtained by letter addressed to "The Perry Fire Arm Co.," Newark, N. J.

LICHTENTHALER'S CULTIVATOR.



The annexed engraving is a side view of a Cultivator, for which a patent was granted to Griffith Lichtenthaler, of Limestoneville, Pa., on the 25th of July last. The nature of the improvement in this cultivator consists in the peculiar manner of attaching the shares to the beams, whereby they (the shares) may be readily adjusted in position, and also allowed to yield to any obstructions with which they may come in contact.

There are two beams, A, secured in an oblique position by cross ties, B B, which are attached to uprights, *a*, on the beams. The oblique position of the beams gives the usual triangular or harrow-shape, the front ends of the beams being nearer together than the back ends. C are the handles or stilts attached to the cross ties, and D is a reach secured to the cross ties, and having a swivel tree, E, attached to its outer end. In the under surface of each beam, A, there is a longitudinal groove or recess, in which a metallic strip, F, is fitted and secured therein by wedges or keys, *c*, which pass through projections, *d*. The projections pass upward from the strips, F, through the beams, A, the wedges or keys, being driven through eyes in the projections above the beams. Each strip is perforated with holes, *f*, as shown. The shares are represented by G. Each share has a socket formed by two lips, *g g*. The sockets are at the upper ends of the shares, and have holes through them. The shares, G, are secured to the beams, A, by placing the lips, *g g*, in the recesses, the strip, F, fitting between the lips, and inserting a metal pivot or pin, *i*, through the hindermost holes of the lips, and through a corresponding hole *f*, in the strip. Wooden pins, *j*, are passed through the front holes of the lips, and through corresponding holes, *f*, in the strips. The body of the shares are set nearly at right angles with the beams, A A, and the dirt is thrown by the shares, as the machine is moved along, towards the center of the machine. In case of the shares meeting with any obstruction, such as a root, stump, stone, etc., the pins, *i*, being formed of wood, will break, and the shares, G, will turn backward, the metal pins, *i*, being the fulcrum or pivots (see dotted lines, the pin of one share being broken), and the share forced back. By this arrangement the machine is prevented from being broken, or any of its parts wrenched by sudden stoppages arising from obstructions. The shares by means of the sockets at their upper ends, and the perforated strips, F, may be readily adjusted to the beams. Shares of different forms may also be applied with the same facility, provided they have the sockets at their upper ends.

More information may be obtained by letter addressed to the patentee.

Hutchinson's Stave Machine.

Among the machines recently received at the "Crystal Palace," we have been specially pleased with C. B. Hutchinson's Stave Jointer, which, with its latest improvements, seems to combine all the requisites of a good jointer. It works very rapidly, and at the same time with mathematical accuracy, adapting itself to any width of stave, giving the bilge in exact proportion to the width, and making a perfect joint for any description of work. The stave is not bent, but simply laid on an endless chain bed-plate, and carried between the saws or cutters. We shall give an illustrated description as soon as the cuts can be prepared.

Grain Separators.

Although many improvements have been made in this class of machines, so useful to our farmers, still many of our people are far from being satisfied with their performances, believing that they are not yet perfect. Joseph Barker, of Honesdale, Pa., has taken measures to secure a patent, for combining a conical hopper and circular inclined screens in a peculiar manner ; the grain is made to pass over a very extensive screen surface, and is equally spread in all directions, whereby the impurities are separated from it in a very perfect manner.

New Fruit Case.

It is not only desirable, but necessary, that fruit which has to be sold in market, if sent from a distance, should be so carefully packed as not to be bruised, otherwise their market value is much depreciated. In order to transport fruit carefully to market, so as to withstand the rough joltings of railroads and wagons, John S. Rood, of Hartford, Conn., has invented and taken measures to secure a patent for an improved case, which consists of a series of triangular boxes, placed together and arranged in tiers, so as to form a many-sided figure, and all enclosed within a case of corresponding form. A tier or row of angular boxes is placed within the case and filled with fruit ; another tier is then placed, with the case resting on the first, and filled with fruit, and the succeeding ones in the same manner, until the whole case is filled. It is asserted that even strawberries, raspberries, &c., may be conveyed to market in this case without being in the least bruised or damaged ; this much can scarcely be said of the common method of carrying them in baskets.

Uniting Plates of Metal of Unequal Thickness.

One of the most useful, and what we would call "*neat* inventions" that we have noticed for a long time, has been made by Jeremiah Carhart, of this city, who is distinguished for the making of melodeons, and consists in a method of uniting plates of metal of unequal thickness in a most rapid and effectual manner. Two plates of metal of unequal thickness are placed together between a punch and a die, the thickest piece next the punch and the thinnest next the die, and pressure is then applied to the punch, which forces a portion of the thickest plate into the thinner one, thus tying them, as it were, both together.

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Scientific American.

NEW YORK, SEPTEMBER 16, 1854.

Our New Volume.

Volume ten of the SCIENTIFIC AMERICAN, commences with this number, under more than usually peculiar circumstances. Severe and extensive droughts and conflagrations in many parts of our country, as well as a stagnation in commercial affairs, present a somewhat gloomy aspect to the public mind. We hope, however, that many dark anticipations will give place to cheering hopes resting on a solid foundation. During the past year, owing to the great advance in the price of labor and paper, and in fact, all printing materials, our expenses have greatly increased. These things call forth renewed efforts, and greater exertions for the extension of our circulation among mechanics, inventors, manufacturers, and lovers of scientific information. At such times as these, however, many of our mechanics find themselves in more than ordinary straightened circumstances, and they may be more reluctant to become subscribers than in other and more prosperous times.—But we trust that none will delay for a more favorable opportunity to present itself, for assuredly the small amount of subscription for half a year, or a whole year, is not beyond the reach of any one who has a wise will. We have never known an instance of a working man who became eminent for skill and intelligence, who was not distinguished for economy in small useless things, in order to save means to purchase knowledge. No money is invested so well as that which is saved from useless expenditure, and applied to the purchase of sound knowledge; the taking of a good paper, for an example.

The illustrated history of reaping machines which we shall publish in this volume, will be of great interest to all our agriculturists, as the information which we shall present, and the machines we shall illustrate, cannot be obtained from any other source. The new inventions which will be illustrated in our columns, and the discoveries in science and art which we shall continue to publish at the earliest dates, will be of interest to every class of our citizens. Our facilities for obtaining information on all subjects relating to science, art, machinery, and patents, both at home and abroad, are widely extended, and possessed by none others, to an equal extent, in this country. These facilities have been greatly extended recently, and our readers may depend upon it, that as every succeeding volume of the SCIENTIFIC AMERICAN has surpassed its predecessor, our best efforts will be continued to make volume ten more worthy still of the support and esteem of our 30,000 patrons.

Scoundrelism in Patent Agents.

We have been shown some correspondence which passed between an inventor residing in Houston, Texas, and a pretended patent agency concern doing business not far from the Patent Office in Washington, which shows the manner in which honest men are thimble-rigged out of money in payment for services never performed. We will briefly state the facts—omitting real names. Peter Simple makes an application for a patent, and entrusts his business in the hands of responsible agents in New York. After his application is duly filed into the Patent Office the SCIENTIFIC AMERICAN announces the fact, and gives a brief description of the invention, together with the inventor's name and residence. No sooner is this made public, than Gouge & Co., of Washington, send on to his address their gas inflated circulars, extolling their great success in "getting through rejected cases." Simple is amazed, and comes to the conclusion that his application is rejected, since from the fact that Gouge & Co. reside in Washington, near the Patent Office; their circular speaks particularly of rejected cases, and they, of course, *never* saw his address in the public newspaper which they take, and must, as a matter of course, derive all their information from the Patent Office direct.—Considerable correspondence ensues—Gouge & Co's. letters are for the most part endorsed by Hon. Mr. Stoolpigeon, M. C., hence it has about it an air of the real live official.

Simple remits $30, for having his case attended to, without consulting his regular agents, and his patent, in due time, is received, as he supposes through the intervention of Gouge & Co.

Now, mark the sequel. During all this time Simple's case laid in the Patent Office awaiting its examination, and when the class to which it belonged came up, it was examined and passed, without a word of objection.—Simple's regular agents are probably let into a knowledge of this operation by a note, that in future he shall employ Gouge & Co., who have manifested so much ability and integrity in the management of his *supposed* rejected case; and when informed that Gouge and Co. probably never saw his application, he begins, as the old saying is, "to smell rat." This is the history of a cool, well calculated swindle, and the parties engaged in it should be dealt with "according to law," and Simple himself shingled for his stupidity.

This class of "Agents" are known, when known at all, as lazy, worthless fellows, never retaining the confidence of an honest employer; they congregate within the vicinity of public offices, and watch from behind a screen for the unsuspecting, and entrap their victims by the most foul and contemptible means. All cities are infested with these pests, who gouge the credulous and bring suspicion upon honest and faithful agents, and the public press is untrue to its duties if it fail to hold up such acts to the public gaze.

Electrical Science and Light.

We perceive by some of our cotemporaries that Paine's Electric Light is again making some noise at Worcester, Mass. We have also received a letter from a correspondent, in which he states, "there can be no doubt but that water is decomposed with great rapidity by Mr. Paine's machine." For the information of our new subscribers who may not be acquainted with the nature of this alleged new discovery, we would state, that it simply consists in decomposing water by a current of electricity generated by mechanical action, then carbonizing the hydrogen of the water, and burning it like common gas. The common and most simple method of decomposing water by electricity, is to generate a current by chemical action, that is, by a galvanic battery composed of zinc and copper plates, the zinc or positive plates being acted upon by an acid. The mechanical method is embraced in what is called the "magneto-electrical machine," which consists of one or more permanent magnets, and one or more soft iron armatures, covered (excepting the curved parts) with insulated copper wire, and made to revolve rapidly on an axis, so as to bring each pole of the permanent magnet or magnets near the ends of the soft iron armatures. The soft iron of each armature becomes alternately magnetized with opposite polarity, and currents flowing in a contrary direction are induced in the copper wire. If a closed circuit be formed, by connecting the ends of the copper wires in such a manner as to produce *a continuous current in one direction*, the current can be made powerful according to the number of magnets employed. By the information we have received from our correspondent, we learn that all which is supposed to be new in Mr. Paine's machine, is the production of a continuous current in one direction. This is not new; it has been done long ago, and water has also been decomposed by it.

Water is composed of the two gases—oxygen and hydrogen—these, when burned on a piece of lime, produce the "Drummond Light." Hydrogen mixed with carbon forms the common gas burned in our street lamps. The hydrogen of water must also be carbonized to produce a good light. This can be done by passing it through camphine or naptha, or benzole, but in our opinion, good light cannot be produced so economically by decomposing water, (especially by the action of a machine,) and then carbonizing it, as by the distillation of coal in producing the common gas now used for illumination. Any new discovery in science for producing light and heat, at less expense than by present modes or substances employed for such purposes, will be hailed as a great boon for the benefit of the human race. Every statement however, of such a discovery being made, should be accompanied with a description of its nature; if not, it should be condemned as an attempt to impose on the public.

The French Industrial Exhibition.

It is well known to our readers that another "World's Fair" is to be held in the city of Paris next year, and it will no doubt be a grand affair; the buildings for the purpose are now being erected; the principal one will be in extent about 50,000 square yards, occupying a space of ten acres. In addition to that the French government are erecting a supplementary building on the banks of the Seine, which will occupy a space of about 35,000 square yards, and present a frontage to the river of about three quarters of a mile in length. The government are at present engaged in completing the Louvre, and the new portion of the building is to be occupied by the works of living artists, consisting of paintings, statuary, drawings, photographs, &c. With respect to the principal building itself, it is not such as was erected in London, the one at Sydenham, or the one in this city; it is of the Corinthian order, built entirely of stone, and is to be covered in with a glass roof of three circular compartments. A peculiarity in the construction of the building is the circumstance of all the staircases being formed outside, by which the appearance presented inside is that of a great unobstructed square. The pillars, which are of immense thickness, give a feeling of confidence as to the security of the building; and the water which is collected on the roof passes down the inside of these pillars, and is conveyed into the common sewers. The building is got up by a joint stock company, who are to have its use for thirty years, at the expiration of which period it reverts to the government. The whole affair is under government patronage, and is strictly national. With that taste for decoration and arrangement for which the French are justly famed, we have no doubt but the display will exceed that of the London Crystal Palace. We do not know how many, if any, of our countrymen are making arrangements for becoming exhibitors in France next year. We hope the number will not be small, for assuredly the sons of old Gaul made a noble display in our Crystal Palace. We ought to return the compliment so far as we can. Americans are highly esteemed in France, and our countrymen may rest assured of cordial, kind, and honorable treatment there, probably better than they received from the Managers of our own Crystal Palace.

The Arctic—Steam and Stame.

On page 365 of our last Volume, we described the alterations which had been making in the Collins' steamship *Arctic*, for the purpose of using steam direct from the boilers, in combination with steam heated out of contact with the water in the boilers, by carrying it to the cylinders in pipes running through the furnaces. These alterations were completed about the first of this month, and a trial trip was made to Boston previous to the sailing of the *Arctic* for Liverpool on Saturday the 2nd inst. We understand the first trial trip was not satisfactory, some of the stame tubes in the furnaces failing to stand the intense heat. Before the test trip was made, in conversation with some very experienced engineers, the question of the *Arctic's* new arrangements came under review, and with one accord the opinion was expressed that the "stame" tubes could not stand the great heat to which they would be subjected. There was no question nor doubt of the economy in fuel by using the super-heated and common steam combined, but as we stated on the page referred to, the economy of "fuel was only one of the questions involved." The use of stame was abandoned for this voyage, and the stame pipes, having been arranged as boiler tubes, were filled with water.

Water for Jersey City.

We congratulate the inhabitants of Jersey City on the recent introduction of an abundant supply of water from the Passaic River. They have exhibited a great deal of enterprise and wisdom in what they have done. It will be the means of greatly advancing the prosperity of their city, and will add much to their comforts. The water, we understand, is taken across the salt Hackensack river in an inverted syphon, 20 feet below the surface, and is afterwards thrown up on Bergen Hill by a powerful steam engine of 300 H. P., where it is received in two great reservoirs, and from thence distributed through the city. No city can be cleanly or healthy, unless it has an abundant supply of good water. It is high time the city of Brooklyn was adopting efficient means to secure a plentiful supply. The citizens have talked about it long enough; let them now set to work and "speak in deeds."

To Subscribers—Our Prizes.

We again would direct the attention of our readers to our list of prizes. They are free and open to all, and deserve more than common attention. No person knows how much he may be able to accomplish in obtaining subscribers until he tries. Those who have heretofore obtained prizes, have assured us that they have found it an easy task to approach every person in soliciting subscriptions for the SCIENTIFIC AMERICAN.

History of Reaping Machines.

The demand upon us for publishing illustrated descriptions of a number of inventions recently patented, has been so urgent, that we shall not be able—as we intended—to commence our history of reaping machines, with illustrations, for two weeks from this date.—It will be the only complete history of the kind ever given to the public, and as the number of reaping machines is not small, there are many conflicting claims with which every farmer should be well acquainted, if he wishes to save himself money and anxiety, and make himself thoroughly intelligent on a subject so intimately entwined with his interests.

Ohio State Fair Postponed.

From several unforeseen difficulties, the Ohio State Board of Agriculture have postponed the Fair to the 17th of next month, (October,) at Newark, Ohio, instead of the 19th of this month, as mentioned in our last volume. Those who have forwarded machines to the Fair, without being aware of the change, we are assured by the Superintendent of Machinery, Joseph E. Holmes, that they will be properly cared for and protected. The Ohio Board of Agriculture hope to exceed any similar Fair yet held, in the general display of stock, farm products, implements, and machinery.

Astronomical Observations in a Coal Mine.

Professor Airey, the Astronomer Royal of England, is about to institute a series of experiments in a coal mine 1260 feet deep, with a pendulum, and also a similar set of experiments at the surface, in order to discover the peculiar action of the earth upon it, so as to determine the true weight of our planet.

$570 IN PRIZES.

The Publishers of the SCIENTIFIC AMERICAN offer the following Cash Prizes for the fourteen largest lists of subscribers sent in by the 1st of January, 1855.

$100 will be given for the largest list,
$75 for the 2nd, $35 for the 8th,
$65 for the 3rd, $30 for the 9th,
$55 for the 4th, $25 for the 10th,
$50 for the 5th, $20 for the 11th,
$45 for the 6th, $15 for the 12th,
$40 for the 7th, $10 for the 13th,
and $5 for the 14th

The cash will be paid to the order of each successful competitor; and the name, residence, and number of subscribers sent by each will be published in the SCIENTIFIC AMERICAN, in the first number that issues after the 1st of January, so as to avoid mistakes.

Subscriptions can be sent at any time and from any post town. A register will be kept of the number as received, duly credited to the person sending them.

☞ See new Prospectus on the last page.

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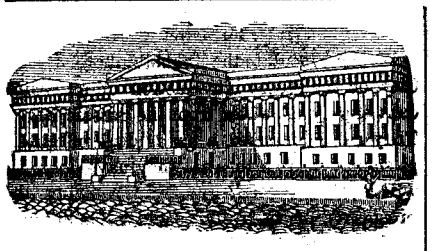

[Reported Officially for the Scientific American.]

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING SEPTEMBER 5, 1854.

M[illegible] Stone Dress for Cleaning Grain—Wilson Ager, of Rho[illegible]rg, Pa.: I claim the described dress, consisting entirely o[illegible]acks, having inclinations, as shown, for causing reverse dra[illegible]ts, so as to turn the grain and revolve it both on its longest and shortest axes, for the purpose of cleaning and scouring it.

Flour Bolt—W. H. Akins, of Ithaca, N. Y.: I claim the connecting rod, in combination with the vibrating bracket and pulley, over which the belt passes: said bracket being secured to an axle, serving the double purpose of giving the bolt a short, quick, horizontal vibratory motion, and at the same time giving it a rotary motion. The whole being arranged as described.

Spring Rollers for Window Curtains—Benj. Bray, of Salem, Mass.: I claim providing the tubular or hollow curtain roller, with a long spiral spring within it, when said spring is used for the purpose not merely of drawing up the curtain by its recoil, as that is not new, but of balancing it in any position in which it may be placed, as described.

Attaching Pullevs to Shafts—Chas. Clareni, of New York City: I claim the method of fastening pulleys to shafts by having a cam cavity, or recess in the pulley, and introducing therein a roller, as set forth.

Chimney Caps—John Clark, of Washington, D. C.: Disclaiming the invention of chimney caps with pendant valves, I claim constructing chimney caps, having balance compensating valves, with a lever or weight or its equivalent, together with the valve opening at the top, whereby is prevented the undue accumulation of smoke within the space, thus affording the speedy escape of the smoke in its ascent upward through the chimney, as set forth.

Seed Planters—Chas. H. Dana, of West Lebanon, N. H.: I am aware that a seed planter like the following has been constructed, and therefore I do not claim it, viz.: a seed planter composed of a seeding box immovably attached to a handle, and having a tube passing from the lower end of said handle downwards through and some distance below the bottom of said box, and depositing seeds by means of a hole in said tube, inside the box, and a movable stem with a seeding recess in its side, working reciprocatingly within and beyond the lower end of said tube by means of the alternate action of a spring at its upper end, and the pressure of the ground against its lower end, as the said planter is operated.

But I claim my improved seed planter, composed of the staff and the reciprocating seeding box and apparatus, arranged in such a manner that the reciprocating movement of the seeding box and apparatus be upon one side or face only of its staff, will cause the seeds to be deposited by means of the measuring cavity in the staff, in connecting with the depositing cavity, and the brush or elastic partition of the seeding apparatus or their equivalents, combined and operating with each other, as set forth.

I also claim the triangular measuring cavity in ths staff in connection with the brush or elastic partition, and the depositing avity of the seeding apparatus, arranged and operating to deposit the seeds by means of the reciprocating movement of the seeding box, and being upon one side or face only of its said staff, as set forth.

Seed Planters—Louis Daser, of Washington, D. C.: I claim the seeder, cut, and slot, in combination with the drill, the flared hole, spring, and cylinder, as set forth.

Ribbon of Strips of Cloth—A. M. Eastman, of New York City: I claim forming upon the edges of strips of velvet a firm artificial selvedge, by means of a brush or cushion, as described, charged with a suitable adhesive compound, as specified.

Reefing and Furling Topsails from the Deck—W. H. Foster, of Portsmouth, N. H.: I claim the arrangement of the jack stay and batten with the main and minor reefing lines, furling or spilling lines, the lines for manœuvring the dog's ears, with the necessary sheaves and blocks, whereby the square sails of a vessel may be reefed and furled by the lowering of the yard from the deck of the vessel, as set forth.

Machinery for Worming Rigging—J.C. Ginn, of South Thomaston, Me.: I claim the combination and arrangement of the helical traveler, the box or tubular frame and the bobbins or eels, the whole being constructed as described and composing a hand machine for the purpose specified.

Portable Door Fastener—G. W. Griswold, of Carbondale, Pa.: I am aware that several forms of portable door fastenings, composed of two or more pieces have been made and patented. I do not claim any of these.

But I claim a portable or removable door fastening made in one piece, and having two or more arms at right angles to each other, with one serrated and one smooth edge, so that when either of said arms are introduced into the crack between the door and its frame, and turned one quarter round its teeth will be pressed into the frame, and the smooth edge of one of the other arms be brought against the door to prevent it from being opened.

Breaking Flax and Hemp—John Hinde, of Schenectady, N. Y.: I do not limit my invention to the employment of the apron rollers, in connection with the pairs of fluted and screw rollers in the machine represented, but intend to use them either alone or connected with any other apparatus for performing a preparatory breaking operation.

But I claim the employment of a moving ribbed sheet or endless apron, with a series of rollers working upon it, as described.

I also claim giving to the said rollers a reciprocating motion backwards and forwards upon the sheet or apron, as set forth.

I also claim giving to the said rollers a reciprocating motion backwards and forwards upon the sheet or apron, as set forth.

[See notice of this invention in No. 41, Vol. 9, Sci. Am.]

Hanging Plane Stocks—M. G. Hubbard, of New York City; I claim the mode of suspending the plane stocks below the edge of the planes by which I insure the pressure on the heel of the stock, as the resistance increases, as set forth, and decrease the size of the springs and the amount of friction attendant thereon.

I also claim the gauge for preventing the insertion of a board of improper thickness, as specified.

Riving Machine—Adoniram Kendall, of Cleveland, O.: I claim, first, the sliding knife, brace, springs, driving arms, the upper arm being separated from the lower, and the planes for raising the upper arm from the knife, while the lower arm passes under.

The several parts named I claim in combination, for the purpose of cutting a block from a bolt and conveying it to the knife, to be divided into two blocks ready to be carried forward by the drivers, to be again divided by the knives.

Second, the combination of the upper springs, the lower springs, knives, and the reciprocating drivers, for the purpose of conveying the blocks divided by the knife from it to the knives, by which they are again divided.

Third, the two side pieces provided with grooves or channels, with the tumbler, the middle channels being of such inclination, that the drivers ascend in passing from the knife, P to W, and return by means of the tumbler in the channel. The driver descends in passing from the knife and returns in the channel, and is thrown up in place by the springs.

I also claim the combination of the grate plates with the tumblers and springs, or other equivalent devices, for the purpose of giving the proper direction to the reciprocating drivers, as set forth.

Wheels of Locomotives for Ascending Inclined Planes—Josephine Morss, of Washington, D. C.: I do not describe in detail the various clutches, stops, &c., and their combinations, that may be necessary in carrying out the various modifications of my improvement, for such I do not claim.

But I claim the use or employment of inclined driving wheels upon locomotive engines, or their equivalents, in combination with the curved rails, constructed and arran ed as set forth.

Ice Cream Freezers—Thos. M. Powell, of Baltimore, Md.: I claim the manner described of constructing ice cream freezers with three or more cylinders, arranged as described, for the purpose of more speedily and effectually freezing the cream, as set forth.

[See notice in No. 34, Vol. 9.]

Tables—Chas. Rowland, of Belleville, Ill.: I do not confine myself to the precise construction set forth; but I claim constructing the supports of the table so as to form seats capable of being closed, and withdrawn, as set forth.

Feeding Paper to Printing Presses—B. A. Ruggand E. H. Benjamin, of Oak Hill, N. Y.: We claim the combination of one or more and less aprons, in such a manner that the sheets of paper in approaching the printing cylinders shall be rolled around a roller, and thus caused to overlap each other, the arrangement and combination of respective parts, by which this overlapping is produced, being the same as set forth.

Second, we claim the combination of the dropping board, operated as described with the apron. as set forth.

Dressing Flax—David Warner, Jr., of South Hadley, Mass.: I claim the construction and arrangement of the heckling and scutching drums; that is to say, drums having a series of heckling bars, or bars armed with teeth set at an angle with the radius, in combination with the blunt edged or scutching bars, and the drums so made and arranged in rows one above the other with the centers of their shafts diagonally placed, so as to cause the flax in passing between to be acted upon by both sets of arms, as described. The whole being constructed and operating as set forth.

Springed Musical Instruments—G. L. Wild, of Baltimore, Md.: What I claim does not consist simply in the employment of screws or their equivalents for tuning and keeping stringed musical instruments in tune. Neither do I claim any particular shape, arrangement or form.

First, I claim the employment of a supporting projection or its equivalents, of the tuning screw, for the purpose set forth.

Second, I claim the use of the slot and guides, or their equivalents, for the purpose described.

Third, I claim the bridle or its equivalents, operated by the harmonizing screw, or its equivalents, for the purpose specified.

[This improvement is noticed on page 132, Vol. 9.]

Doors for Baggage Cars—H. L. Clark, of La Porte, Ind.: I claim having the door placed between ways which are secured to the sides os the car by hinges, and forcing the door outward by the device shown, or its equivalent, so as to cause the outer ends of the hinged ways, to be in contact with stationary ways, between which said door is shoved when opened, as described.

[This invention is noticed in No. 40, Vol. 9.]

Railway Lamps—L. S. White, of Chicopee, Mass. (assignor to himself, Lewis White, of Hartford, Conn., Lyman White, of Springfield, Mass., and A. G. Stevens, of Manchester, N. H.: I do not claim the employment of a tube or passage descending through the burner so as to admit air to the interior of the wick tube and flame.

But I claim the arrangement of the filling orifice, and the air tube leading out of the closed secondary oil and carbon receiver or chamber under the wick tube, such arrangement consisting in placing the filling orifice on the upper part and at or near one end of the lamp, as described, and carrying the oil tube in an inclined direction through the main oil chamber, and out of the top thereof, whereby the contents of the secondary oil receiver may be emptied from the said receiver and through the tube, without danger of spilling the contents of the main oil receiver out of the filling orifice thereof.

Brick Presses—A. H. Brown, of Georgetown: D. C.: I do not claim the broad device of constructing molds which close before receiving the clay, and open when discharging the bricks.

But I claim the peculiar construction of my mold, as described, for this purpose, each separate frame or link in the chain of molds forming a part of two molds, the projecting plate, as the molds pass over the first octagon, closing so as to form the bottom of the preceding frame and the side, closing against the ends of the preceding frame so as to form a perfect mold when the chain is horizontal: as the frames pass over the second octagon, the sides and the ends releasing themselves from the plate of the preceding frame, leaving the brick free upon the plate, so that it may be easily discharged, the lugs gearing into the octagons for propelling the molds.

Second, I claim, for the purpose of compressing dry clay into brick, the combination of the two plungers with the cams, the cams revolving and the plungers moving in unison, the first cam having the longitudinal radius and causing the first plunger to descend the greatest distance upon the easily compressible clay: the second cam, which actuates the second plunger having a smaller radius than the first cam, so that the greatest force of compression is applied to the clap already partially compressed where the greatest power is required.

New Tanning Process—Leather, Shoes.

On the 18th of July last, a patent was granted to Roswell Enos, for tanning sole leather by a new process, and from specimens of leather produced, placed in our hands for examination by the patentee, as well as from reading the specification we are convinced that the process is a good one. No new substances are employed, those which the patentee uses having been long known to tanners; he only employs them in a different manner from that which has been practised heretofore.

"The hair is first removed from the hides in any usual manner, and the hides thoroughly cleansed in either pure water or in a solution of salt and water. A batch of fifty sides are then placed in a liquor composed by steeping 40 pounds of Sicily Sumac, or 150 pounds of unground native Sumac, in 250 gallons of water, and adding 25 pounds of salt thereto. The sides remain in said liquor from twelve to twenty-four hours—the length of time depending upon the temperature of the said liquor and the condition of the sides.—About blood heat is the best temperature for the aforesaid liquor. After the sides have remained the aforesaid length of time in the salted infusion of Sumac, the liquor is strengthened by adding thereto somewhere about 200 gallons of strong oak or hemlock liquor, and fifteen pounds of salt, and the sides allowed to remain in this strengthened liquor for the space of from twelve to twenty-four hours. The sides should then be withdrawn, and placed in about the same quantity of a strong cold oak or hemlock liquor, containing twenty pounds of salt in solution, and allowed to remain in it for five or six days. They are then withdrawn, and placed in the same quantity and quality of liquor—save that it should be of about blood warm temperature, and are allowed to remain therein five or six days, which latter operation should be repeated for six or seven times, when the side will generally be found to be completely tanned. Whilst passing through each stage of this said Tanning Process the sides should be repeatedly handled, as all tanners are fully aware."

This is a description of the process. Practical tanners will perceive that neither acids nor alkalies are used for raising the hides, but that the salt sumac liquor is employed for the preparatory, and the common tan liquors for the finishing process. The inventor is an old experienced tanner, and he says: "the salt sumac liquor enters at once into the pores to the very heart of the sides, and so acts upon them, as to give them an exceedingly pliable yet firm basis, and so prepares them that the strongest liquors of oak or hemlock, &c., may afterwards be applied without binding or injuring the hides."

Tanning is a chemical process, and consists in applying such substances to the skins of animals as will combine with them, and form a compound firm, pliable, and insoluble in water, which we term "leather." It is easy to make leather, but there are as many qualities of it as there are of cloth. The tanning processes, to make good leather, are tedious and expensive, requiring months to complete all the operations. To shorten the time required in the process, many plans have been employed, and numerous substances used to bloat the hides, so as to allow the tanning to combine rapidly with their gelatine. Some of these have, indeed, shortened the process, but at the expense of the quality of leather, it being rendered very brittle; hence a general, and perhaps a just prejudice exists among practical tanners against new processes in this art. No such prejudice can exist against this new process, as no new substances are used. The sole leather which we have seen made by it will bear the most severe scrutiny. We have also been assured that the sole leather made by this process, from sweated Buenos Ayres hides, will make sewed work equally as well as the limed slaughter hides. The leather is also tough and strong. The length of time required for tanning a dry Buenos Ayres hide is ninety days, with seventy-five per cent. gain. The time required for tanning an Oronoco hide is much less, with a gain of eighty or eighty-five per cent. This method will tan slaughter sole leather in thirty days; harness of upper leather in the rough in twenty days, and calf-skins in from six to twelve days."

We believe the public is more deceived, and gets less real value for their money, in common boots and shoes than any other article used as parts of human covering. The lighter kinds of shoes especially, sold in the stores, are a disgrace to the trade both as it respects the sewing and the leather. The uppers are generally made of glazed sheepskin, about as thick and strong as old-fashioned brown paper, and the sewing, which is now performed in many instances by machines, is so carelessly executed as to bring into disrepute—unjustly, we think—the character of those machines. In conversation, a few days ago, with a journeyman carpenter, in our city, who has a family of five children, he declared it impossible for him to keep his family in such shoes as were sold at the stores." He had, from necessity been compelled to learn the art of making boots and shoes for his children, and one pair of his own making, he assured us, lasted four times as long as a "market pair." This should not be, for we are convinced that the lighter as well as the heavier kinds of leather can be made far better than most of that which is now generally used, and we hope this new process of tanning will be the means of effecting a total reformation in the character of the material for making common boots and shoes.

Information respecting the rights of Mr. Enos' process, may be obtained by letter addressed to him, at Binghampton, N. Y.

The Mammoth Steamer.

Messrs. Editors—In your number for August 12th, is a paragraph respecting the Mammoth Steamship now building in England for the Eastern Steam Navigation Co.; and as I have no doubt that any authentic information respecting this great undertaking will be interesting to yourself and readers, I send herewith an extract from a letter received by me from my friend W. S. Garland, principal draughtsman to the firm of James Watt & Co., of Birmingham, England, who are constructing one set of the engines for this ship:—

"You will probably have heard of the Eastern Steam Navigation Co.'s great ship now building by Scott Russell at Millwall, but in case you have not seen any authentic particulars of her size, I will give them to you. Her length is 680 feet (double the length of the *Himalaya*,) 83 feet beam, and 58 feet deep in hold; capacity 10,000 tuns register; 23,000 tuns builder's measurement. She is to have screw engines, which we are making, having four 84-inch cylinders 4 feet stroke; and paddle wheel engines, making by Scott Russell, having four 74-inch cylinders and 14 feet stroke (oscillators.) The power of the screw engines taking them at 7 lbs. and 45 revolutions =1692 horses; the paddle-wheel engines at 12 revolutions=1228 horses, making 2920 nominal horse power; but as steam of 25 lbs. is to be used, we may assume that the actual power exerted will be four times the nominal, or nearly 12,000 horses. Screw is proposed to be 24 feet diameter, with a 40 feet pitch, and the speed is calculated at 18 or 19 miles per hour—draft about 28 feet."

R. H. Davies.

Philadelphia, Aug. 28th, 1854.

Piston Packing and Lightning.

Messrs. Editors—On looking over your valuable journal of the 19th, I noticed an arricle headed "Piston Packing and Lightning," which is in most part correct except the "pumps," which contain no valves whatever; the chest containing the valves is seperate from that containing the piston.

I will here state that the engine is non-condensing, and at the time of the occurrence was working quite slow. There was one of the most terrific storms, accompanied with continuous lightning. Very suddenly the engine changed her motion, as stated in the former article. On examining the valve chest, I found both suction valves (5 feet apart) entirely off, which must have been instantaneous, as, if one valve had remained in its proper condition, the head of water would have been partly maintained, the pump being double acting.

After repairing damage, &c., I found the rubber was nearly melted. The idea that lightning had melted the valves was first suggested by several scientific gentlemen of this city; the only question with me is, what could have melted the rubber, which is always covered with water when the engine is in motion? I will also state that I have found other proofs of lightning. D. C. Cregier, First Engineer.

Chicago Water Works, Aug., 1854.

Explosive Well.

The *Buffalo Democracy* says that a singular occurrence, resulting in a melancholy manner, took place recently, in the town of Hamburg, in this county. An Irishman was engaged in digging a well, and after getting down to the depth of some eighteen or twenty feet, found signs of water very perceptible. At last he struck his pick through a thin layer of slate, and with a noise like thunder, sufficiently loud to be distinctly heard all over the neighborhood, a stream of mingled gas and water burst through the orifice, instantly killing the unfortunate man, and filling the well to the depth of ten or twelve feet of water. Gas still escapes profusely, and the water is in constant and violent motion, resembling a large cauldron of boiling fluid.

Use of Soluble Glass.

A soluble glass has been applied to the woodwork and scenery in the Munich Theater, for the purpose of preserving, and as far as possible, rendering them incombustible. This glass is, in fact, a solution of free silicia in caustic alkali; and if the wood is properly seasoned, there can be no doubt of the value of the application.

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TO CORRESPONDENTS.

A. H., of N. Y.—The plant which you have sent us grows profusely here, but is not used for any purpose. How is it employed in dyeing the blue: what is the mordant for it?—We would like to try some experiments with it. The boxwood you have sent is not equal to the Turkey for engravings. We are much obliged to you.

J. H., of Ohio—We have never been able to get all the evidence in the case of the *Kate Kearney*, and we do not think it has been published. We will be happy to try the article referred to by you; but there is no poisonous substance in good wheat flour.

C. P., of Iowa—We do not see how a re-action wheel can be made to give nearly double power, by the peculiar form of buckets which you describe, If the effect stated by you can be produced, we have no doubt but the Patent Office will grant a patent.

J. B., of Texas—A fan for keeping flies from the table and for ventilation of apartments, is a well-known contrivance. The battery will only deposit the pure metal. We cannot give directions for depositing alloys as we are not aware that this can be done.

H. S., of Ky.—We would not advise you to have the chain railway published until you can develope its importance.

J. P. H., of Va.—We do not recollect where the *Soil of the South* is published.

John Crum, of Winchester, Va.—Wants a machine for making shoe pegs.

J. W. P., of Ind.—Your ideas in regard to steam brakes are not new: the same thing has been long known.

J. H. Dearing, Tuscaloosa, Ala.—Desires to get information about the best machinery in use for excavating and grading railroads. He is interested in a road now in progress, and like a sensible man wishes to use the most approved machinery for carrying out the work.

A. B. C., of ———.—We are receiving letters from various parties requesting us to procure the premium awarded by the "Crystal Palace Association," for their respective inventions. Now we must decline these requests, as we have no time to attend to them; If the Crystal Palace was not more than a half mile from our office we might be induced to oblige our friends, but as the case is different, we must refuse all who ask of us like favors.

S. S., of N. Y.—In the course of our history of reaping and mowing machines we shall publish one similar to yours. It does not embrace, in our opinion, any patentable feature.

J. S. S., of Md.—The engraving of your kiln is all ready and will soon appear. Please to bear in mind that we do not attend to job printing of any kind. We are often requested to have suitable circulars prepared after the engravings have appeared in our paper; this we cannot do, under any circumstances, as it is out of our line. The engraving, after publication, will be subject to your order.

I. S. M., of Fla.—We have never paid any attention to the "fertilizer" named in your letter.

J. H., of Pa.—Extension ladders have been patented, and used as fire escapes. We have seen ingenious arrangements for the purpose.

H. G. B., of Mich.—Your method of protecting horses from the heat of the sun, does not appear to have any patentable features. A device somewhat similar is used by carmen in this city, for the same purpose. We do not think yours presents difference sufficient to justify the application for a patent.

A. J., of N. Y.—The Woodworth Patent Planing Machine will expire in 1856. It has not been extended beyond that date, and we think it will be some time before our National Congress can be sunk so low as to grant another extension.

J. H. C., of Pa.—Wishes to know if there is any composition of sand, soap stone, plaster of Paris, or any other material that could be formed into a mold easily, to mold castings in the usual way, any number of times, without injury to the mold.

B. P., of Mo.—There is, in our opinion, no objection to your using a rotary cutter in planing, unless you employ pressure rollers in combination. The Woodworth folks set up a claim to pressure of every kind, when used in combination with a rotary cutter. Their pretensions on this point are presumptuous, in our opinion, but this cannot shield you from a suit, if they choose to bring one against you.

Y. A. C., of Mass.—Send a sketch and description of your water faucet, and we will examine it. Type setting machines have been invented, and patented; none are in use we believe.

W. L. G., of Va.—Black paint with some common varnish is good for blacking the figures in rules, &c.

W. R. G., of Ky.—We do not know of any "mechanical device for adjusting rifle or other guns to the spot desired to be hit by the ball, except for cannons."

H. Mc C., of Pa.—Blanchard's patent for turning irregular forms, is still in force and has several years yet to run.

G. W. F., of Ohio.—Your suggestions in regard to the alteration of bank bills are new, and we would advise you to correspond with the parties advertising for the improvement. Many write to us under a misapprehension that we are the proper persons to correspond with, when such is not the case. We do not care to receive any more letters upon the subject, as we have already had our share.

E. M., of Ind.—Your ideas of ballooning have been fully anticipated by those of Mr. Pennington, who claims to be the pioneer on this subject. We perceive nothing new or patentable in your magnetic engine, and do not think it can be made to operate with any degree of satisfaction.

E. F. F., of Vt.—You may be able to obtain a patent for the ink, but the substances used must be minutely described. We do not know of what the sand you speak of is composed.

Money received on account of Patent Office business for the week ending Saturday, Sept. 9 :—

P. T., of Phil., $30; W. H. E., of N. Y., $35; A. M., of L. I., $35; W. D. T., of L. I., $30; T. M. C., of Me., $25; G. W. S., of N. J., $15; A. J. P., of Mass., $12; R. D., of Ct., $30; I. C. D., of N. Y., $100; T. S. W., of N. J., $30; S. & N., of Ct., $30; E. L. H., of N. Y., $25; B. & W., of Mich., $10; W. G., of N. Y., $30, G. & E. W., of N. Y., $10; F. T. F., of Vt., $25; D. W., of Mass., $30; P. D., of N. Y., $30; H. B., of Ct., $25; H. D., of Ct., $30; E. T. J., of N. Y., $25; N. B., of N. Y., $60; C. G. E., of N. Y., $25; P. J. C., of Ct., $30; R. M. S., of N. Y., $35.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Sept. 9:—

T. M., of N. Y.; R. D., of Ct.; T. M. C., of Me.; A. J. P., of Mass.; E. T. J., of N. Y.; H. W. P., of N. Y.; A. M., of N. Y.; S. & N., of Ct.; E. L. H., of N. Y.; J. P., of Ky.; T. S. W., of N. J.; H. B., of Ct.; F. T. F., of Vt.; A. E., of N. Y.; C. G. E., of N. Y.; N. B,, of N. Y.; P. J. C., of Ct.; R. M. S., of N. Y.

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It is very important that trustworthy and competent agents should be employed in securing patents, as great care is necessary in the preparation of the papers, as well as integrity in taking proper care of the case until the inventor is duly invested with his legal rights. Parties intrusting their business in our hands can rely upon prompt and faithful attention. Most of the patents obtained by Americans in foreign countries are secured through us; while it is well known that the largest proportion of patents applied for in the U. S., go through our agency.

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SIGLER'S PATENT FISH HOOKS—I am now making my patent fish hooks illustrated in Sci. Am., Vol. 9, page 340. It is the best article known for doing up the work, and I am prepared to fill all orders with prompt dispatch. Address HENRY SIGLER, 167 Church street, N. Y., or T. L. JENNINGS, Agent. 1*

RENSSELEAR POLYTECHNIC INSTITUTE—Designed for the education of Architects and Civil Engineers, including Railway, Hydraulic, Topographical, and Mining Engineers. For copies of the Annual Register, giving full information respecting the Institute, apply to B. FRANKLIN GREEN, Director, etc., R. P. I., Troy, N. Y. 1 8

TO IRON FOUNDERS—Scotch and American Pig Iron. English Sheet Iron and Boiler Plates. Fire Bricks, Clay and Sand, and all kinds of Iron Founders' Facing Materials for sale by G. O. ROBERTSON, 135 Water street, (corner of Pine) New York. 1 6*

MACHINISTS' TOOLS—The subscribers would respectfully call the attention of machinists and engineers to their Patent Improved Tool Rest for Engine Lathes, they are now prepared to receive orders for Engine Lathes with this improvement, and will spare no pains nor expense to make their machines a first rate article in every respect. Novelty Iron Works, Boston, Mass. W. W. NICHOLS & CO. 14 eow

STEAM ENGINE—80 Horse Power, for sale by the Lawrence Machine Shop. It is now driving the machinery in the Crystal Palace, and can be delivered the 1st of Nov., 1854. Apply to Gordon McKay, Treasurer, office 51 Broad street, New York, 47 State street, Boston; J. C. Hoadly, Superintendent, Office in Lawrence, Mass.: or David A. Clary, Selling Agent, Office at the Machinery Depot of the Lawrence Machine Shop. The Lawrence Machine Shop have now on hand Locomotives, Steam Engines, all kinds of Machinists' Tools, large Lathes (finished) for Locomotive Drivers and Planing Machines—that plane 3 feet square by 12 feet. Parker and Turbine Water Wheels, Wool Cards and Jacks, Shafting and Pulleys, &c., promptly made to order. A superior article fo Oak Tanned Sewed Leather Belting constantly on hand. Inquire as above. 1 4*

THE MERIDEN MACHINE CO.—Successors to Oliver Snow & Co., West Meriden, Conn. Have on hand and make to order a great varietv of Lathes, Planers, and other machinists tools of superior quality and finish. Cuts of these tools may be had on application as above, with full particulars. They also manufacture Farnam's Patent Lift and Force Pumps of all sizes. For mines, factories, railroad stations, &c. Having a large and extensive variety of patterns, the accumulation of over 20 years business, and extensive facilities for making light or heavy castings, are prepared to contract for any kind of mill work, mining machinery, &c. New York Office and Sample Room, No. 15 Gold, cor. Platt st. 1 tf

FOR SALE—The Patent of Bouton's Improved Faucet, dated April 18th, 1854, (see Scientific American of June 3rd, 1854.) It will be sold entire or by States—and at a price to render the purchase desirable. It is believed this is a real improvement over all other faucets, in economy, durability and facility of refitting. R. M. BOUTON, West Troy, N. Y. 1*

UNITED STATES PATENT OFFICE.
Washington, August 21, 1854.

ON THE PETITION of Milton D. Whipple, of Somerville, Mass., praying for the extension of a patent granted to him on the 28th day of October, 1840, for an improvement in "machine for cleaning wool from burs and other foreign matter, and also for ginning cotton," for seven years from the expiration of said patent, which takes place on the 28th day of October, 1854.

It is ordered that the said petition be heard at the Patent Office, on the 23rd of October next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 13th of Oct.: depositions, and other papers relied upon as testimony, must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Evening Argus, Philadelphia, Pa.; Scientific American, New York, and Post, Boston, Massachusetts, once a week for three successive weeks previous to the 23rd day of Oct. next, the day of hearing.

CHARLES MASON,
Commissioner of Patents.

P. S.—Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 51 3

UNITED STATES PATENT OFFICE,
Washington, July 25, 1854.

ON THE PETITION of Robert. L. and Francis B. Stevens, of Hoboken, New Jersey, praying for the extension of a patent granted to them on the 25th day of January, 1841, for an improvement in "working the steam valves of steam engines when the steam is cut off and allowed to act expansively," for seven years from the expiration of said patent, which takes place on the 25th day of January, 1855:

It is ordered that the said petition be heard at the Patent Office, on Monday, the 1st of January next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing: all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 22d of December; depositions and other papers relied on as testimony, must be in the office on or before the morning of that day, the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.: Evening Argus, Philadelphia, Pa.; Scientific American, New York, and Post, Boston, Massachusetts, once a week for three successive weeks previous to the 1st day of January next, the day of hearing.

CHARLES MASON,
Commissioner of Patent

P. S.—Editors of the above papers will please copy, and send their bills to the Patent Office, with a paper containing this notice. 50 3

UNITED STATES PATENT OFFICE
Washington, August 18, 1854.

ON THE PETITION of Jordon L. Mott, of New Haven, praying for the extension of a patent granted to him on the 1st day of December, 1840, for an improvement in "the mode of constructing a combined cauldron and furnace for the use of agriculturists and others," for seven years from the expiration of said patent, which takes place on the first day of December, 1854:

It is ordered that the said petition be heard at the Patent Office on Monday, the 6th day of November next, at 12 o'clock, M.; and all persons are notified to appear and show cause, if any they have, why said petition ought not to be granted.

Persons opposing the extension are required to file in the Patent Office their objections, specially set forth in writing, at least twenty days before the day of hearing; all testimony filed by either party to be used at the said hearing must be taken and transmitted in accordance with the rules of the office, which will be furnished on application.

The testimony in the case will be closed on the 31st day of October, 1854; depositions and other papers relied upon as testimony must be filed in the office on or before the morning of that day; the arguments, if any, within ten days thereafter.

Ordered, also, that this notice be published in the Union, Intelligencer, and Evening Star, Washington, D. C.; Evening Argus, Philadelphia. Penn.; Scientific American, N. Y.; and Post, Boston, Mass., once a week for three successive weeks previous to the 6th of November next, the day of hearing. CHARLES MASON,
Commissioner of Patents.

P. S. Editors of the above papers will please copy and send their bills to the Patent Office, with a paper containing this notice. 1 3

MAGIC LANTERNS AND DISSOLVING Views for Sunday Schools, Academies, and Public Exhibitions, with Scriptural, Astronomical, Temperance and other Paintings A priced and illustrated Catalogue of Lanterns and Slides sent by Mail, free of charge.
McALLISTER & BROTHERS,
1 3. 48 Chestnut Street, Opticians, Philadelphia.

NORTHVILLE MACHINE WORKS—Manufactory of Machinists Tools, consisting of Engine Lathes, Power Planers, Hand Lathes, Engine Lathe for turning chair stuff, all of the most improved patterns and quality of workmanship. Worcester, Northville, Mass., August 9, 1854. TAFT & GLEASON. 50 1y*

NEW PATENT FLOUR AND GRAIN MILL—Patented June 6th, 1854. The subscriber is finishing the following mills: 8 twenty inch, price $100; 6 thirty inch, $200; 3 three feet, $300; 2 four feet, $400, and will pay $1,000 for any other mill as durable, simple, economical of power, which will grind as much from one dressing, which will heat the flour and meal as little, and is as easily kept in order. Cuts sent to post-paid applications, and liberal commissions allowed to agents for cash orders. EDWARD HARRISON, New Haven, Conn., July 24th. sole owner of all interest in the patent right. 50 9*

JOHN PARSHLEY, Manufacturer of machinists tools, No. 5 and 7 Howard street. New Haven, Ct., has for sale 1 locomotive lathe, which has not been used more than two months, all told, and is as good as new, its first cost was $1250; having come into present hands with a large lot of other tools, it is now offered for the small sum of $900 cash; weighs 9 tuns, head boring of the arbor is 12 in. diameter, swings 7 4-12 feet, has counter shaft and pullies. Cuts of the same can be had by addressing as above, post-paid. 1 2

JOHN PARSHLEY, manufaeturer of machinist's tools, No. 5 and 7 Howard street, New Haven, Ct., is now finishing a lot of iron planers to plane 8 5-12 feet long, 30 in. wide, and 26 in. high, having the down and angle feed in the cross head, the planers all of the best quality, and prices extremely low for the quality. Cuts with full particulars can be had by addressing as above, post-paid. 1 tf

LARGE POWER PLANER—Will plane 20 feet long, 3 feet 5 in. wide, and weighs over 6 tuns. Now ready for delivery, and will be sold lower by $300 than the same quality of machine can be bought anywhere else. Warranted good. Call and see, or address, (post-paid) C. POTTER, Jr., Westerly, R. I. 51 3*

PATENT SASH FASTENER—The subscriber will sell rights to make and sell his improved Sash Stopper and Fastener as follows:—License for any town of not over 5,000 inhabitants, and one dozen fasteners with directions, $5: for larger towns and cities or counties on liberal terms. Letters to be addressed (post-paid,) W. S. HADAWAY, Chiltonville, Mass. P. S.—See engravings of this invention in No. 51, Vol. 9, Sci. Am. 51 3*

IRVING'S PATENT SAFETY CIRCULATING STEAM BOILER—For Stationary, Locomotive, and Marine Engines. These Boilers having been thoroughly tested by scientific experiment and practical use, are being rapidly introduced into every part of the United States. Their claims to superiority are fully supported by the united testimony of highly respectable parties, who have given them the most successful trials. The following are among the chief advantages of this Boiler: 1st. Great increase of heating surface, with diminution of bulk. 2nd, Economy of fuel—a saving of more than 50 per cent. being effected over other boilers. 3rd. Economy of space, compactness, and strength of form. 4th. Increased safety from explosion. 5th. Freedom from incrustation. Circulars obtained on application at the Company's Office. Boilers of any required power furnished on short notice. Rights negotiated for all parts of the United Staies, England, France, and Belgium.—All communications promptly attended to.
W. F. PHELPS,
45 3m* Sec'y Irving S. Boiler Co., 347 Broadway, N. Y.

KENTUCKY LOCOMOTIVE WORKS—Corner of Kentucky and Tenth streets, Louisville, Ky.—The proprietors of the Kentucky Locomotive Works would respectfully inform Railroad Companies and the public generally, that, having completed their establishment, they are now prepared to receive and execute orders with fidelity and dispatch. They will contract for Locomotives, Passenger, Baggage, Freight, Gravel, and Hand Cars, of every style and pattern, as well as all kinds of Stock and Machinery required for railroads.—Particular attention will be paid to Repairing, for which they have every facility. They are also prepared to contract on favorable terms for building all kinds of Machine Tools, such as Turning Engines, Laths, Planers, Drills, Slotting, Splining, and Shaping Machines of every variety of pattern. Having also a large Foundry connected with the establishment, orders for castings are solicited, and will be filled with promptness. Car Wheels of any pattern can be furnished on short notice. Double and single plate and Spoke Wheels of all sizes constantly on hand. Communications or orders must be addressed to OLMSTED, TENNEYS & PECK, Louisville, Ky. 40 6m*

MECHANICAL ENGINEERING—CHARLES EHMAN & CO., Consulting Engineers and Designers, 333 Broadway, New York. Designs, Working Drawings, estimates and contracts for high or low pressure steam engines (Ehman's improved vertical engine) Boilers, Pumps, Presses, Saw and Grist Mills, Tools and Machinery of every description. Particular attention paid to making drawings and working plans for inventions and models, to the construction of patent machines, etc., etc, Arrangements made, and plans furnished for putting up and locating Engines, Boilers, Shaftings, and all kinds of machinery in buildings, etc., etc. 51 8*

REYNOLD'S DIRECT ACTION and Re-Action Water Wheel—This is one of the most simple, cheap, and efficient Iron Water Wheels now in use. For description, cuts, &c., apply to SAML. B. LEACH, Agent, 60 Beaver st., N. Y. 45 13*

FOR GREASING MACHINERY—For all purposes of lubrication, "Metallic Oil" has many recommendations. Its tendency to remain on a smooth surface of metal, instead of running off or evaporating, its property of resisting heat and keeping the bearings of machinery cool, and its freeness from "gum," are important considerations with engineers and machinists. A fair trial will convince any unprejudiced person that it is a very valuable substitute for sperm oil.
For sale in quantities to suit purchasers by
YOCKNEY & CO.,
Sole Manufacturers of Cumberland Brothers' Patent "Metallic Oil," Elizabethport, N. J., office 67 Exchange Place, N. Y. 45 12*

READING'S PATENT CORN SHELLER and Cleaner—capacity 200 bushels per hour. 9 first premiums awarded in the Fall of 1853. Patent Rights and Machines now for sale at the corner of 2nd Street and Pennsylvania Avenue, Washington, D. C. I challenge the world to produce its equal. Address personally or by mail. WILLIAM READING. 43 13*

THE EUROPEAN MINING JOURNAL, Railway and Commercial Gazette. A weekly newspaper, forming a complete history of the Commercial and Scientific Progress of Mines and Railways and a carefully collated Synopsis, with numerous Illustrations of all New Inventions and Improvements in Mechanics and Civil Engineering. Office, 26 Fleet Street, London.—Price $6 1-2 per annum. 43

ENGINEERING—The undersigned is prepared to furnish specifications, estimates, plans in general or detail of steamships, steamboats, propellers, high and low pressure engines, boilers and machinery of every description. Broker in steam vessels, machinery, boilers, &c. General Agent for Ashcroft's Steam and Vacuum Gauges, Allen & Noyes' Metallic Self-adjusting Conical Packing, Faber's Water Gauge, Sewell's Salinometers, Dudgeon's Hydraulic Lifting Press, Roebling's Patent Wire Rope for hoisting and steering purposes, etc.
CHARLES W. COPELAND,
1 tf Consulting Engineer, 64 Broadway.

A. B. ELY, Counsellor at Law, 52 Washington st., Boston, will give particular attention to Patent Cases. Refers to Messrs. Munn & Co., Scientific American. 16 1y*

PHŒNIX IRON WORKS—GEO. S. LINCOLN & CO., Hartford, Conn. Manufacturers of Machinists Tools. Are constantly making and have now on hand an assortment of Screw Cutting Engine Lathes, viz.:—1. bed 10 feet long, swing 20 inches. 2. bed 14 feet long, swing 30 inches. 3. bed 16 1-2 feet long, swing 40 inches, with improved bed, cast steel spindles, feed motion carried by a screw, toothed rack for moving tool rest by hand, improved gibb rest and tool stock, stationary and traveling backrest; also manufacturers of Lathes for turning Locomotive Driving Wheels, small Power Planers, Upright Drills, Power Punching Presses, &c. Designs of the tools with further descriptions, will be sent by addressing as above. 1 3m

PATENT RIGHT FOR SALE—We are ready to dispose of the Patent Right, (or any part of it) of the best Stone Drilling Machine now in use, or we are prepared to furnish working machines at very reasonable prices, these machines will drill from one to seven inches in diameter, and 100 feet deep, and can be worked by Hand, Horse, or Steam Power, one machine performing the work of twenty-five men. For further particulars and circulars with cuts address JAS. T. WHITTEMORE, Agent American Manufacturing Co., 39 State street, Boston. 40 tf

LEONARD & WILSON—No. 60 Beaver st., and 109 Pearl st., have constantly on hand and for sale a full assortment of Machinists' and Carpenters' Tools, embracing every variety of Engine and Hand Lathes, Iron Planing Machines, Mortising and Tenoning Machines, Wood Planers, &c. Also Leather Belting of all sizes made of the best oak tanned butts, stretched on powerful machines, riveted and cemented. 42 13*

PALMER'S PATENT LEG—"The best appliance ever invented." Pamphlets containing the testimonials of the first American and European surgeons, and other information concerning this invention sent gratis to all who apply to PALMER & CO., Springfield, Mass.: or 376 Chesnut st., Philadelphia. 42 13*

NORCROSS' ROTARY PLANING MACHINE—The Supreme Court of the U. S., at the Term of 1853 and 1854, having decided that the patent granted to Nicholas G. Norcross, of date Feb. 12, 1850, for a Rotary Planing Machine for Planing Boards and Planks, is not an infringement of the Woodworth Patent.
Rights to use N. G. Norcross's patented machine can be purchased on application to N. G. NORCROSS,
208 Broadway, New York.
The printed report of the case with the opinion of the Court can be had of Mr. Norcross, at Lowell, or 27 State street, Boston. 36 6m*

MACHINISTS TOOLS—SHRIVER & BROS., Cumberland, Md., (on B. and O. Railroad, midway between Baltimore and the Ohio River,) manufacturers of Lathes, Iron Planers, Drills and other machinists tools. 50 6m*

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Scientific Museum.

The Progress of Discovery.

No man can tell where improvements in the arts will stop, or what discoveries are yet to be evolved from the still wide and unbounded unknown. When we think of what was a century ago, and what is now; when we review the inventions which have been made during that period, and pass them before the mind, they almost seem too numerous and great for our belief. In 1805 there were only four steam engines in the United States; not a steamboat, not a railroad, not a locomotive. Few machines of any kind were made then, and scarcely any kind of manufacturing operations conducted. In 1840, there was not an established line of telegraph in our country; now we have no less than twenty-three or four thousand miles of wires. The Daguerreotype is but a few years of age, and the vulcanization of India rubber no older. In the manufacture and improvement of various tools, vast progress has been made in a very few years. The printing press, from the slow hand machine, printing a few hundred copies in an hour, has been yoked to the steam engine, and now throws off thousands of copies in the same time. It is impossible for us to enumerate a tithe of all the inventions and discoveries which have been made during the past century; they are almost beyond computation. Our object is to present the subject for reflection to the numerous ingenious men in our country. The field before them is still a comprehensive one. Some new discovery may yet be made whereby the air above may be as safely and economically navigated as the waters beneath. In agriculture, in machinery and in chemistry, what stores of new wonders may be developed. Every man who makes a new improvementor discovery is a public benefactor. His labors vibrate far beyond the boundaries of his own existence, even *to distant generations.*

Mont Blanc on Fire.

In a letter from Chamounix, given in the Savoy *Gazette*, we read: "A new ascent of Mont Blanc has just taken place, having been accomplished by Mr. Blackwell, a young Englishman, twenty-two years of age. During the ascent, Mr. Blackwell observed a rather singular phenomenon. In the night of the 10th Aug., at 11 o'clock, a guide having come out from the cabin of the Grand Mulets, saw the ridges of the mountain cluster all on fire. He immediately communicated what he had observed to his companions, who all wished to assure themselves of the fact, and they then saw that through the electricity generated by the tempest, all the rocks of the Grand Mulets were illuminated. They found the same phenomenon on their own persons.—When they raised their arms their fingers became phosphorescent."

Curiosities of Science.

Walking on Red-hot Iron Plates.—Prof. Pepper, recently delivered a lecture in the Polytechnic Institute, London, before a large audience of mechanics, in which he remarked that the setting of the Thames on fire was no longer a joke, but a reality. By dashing a small bottle of sulphuric ether with a few particles of metal potassium into a flat cistern, a bright flame was produced, which illuminated the whole place. He then laid down four plates of red hot iron on four bricks, and one of his attendants walked over them barefoot, without any injury. By wetting his fingers in ammonia, the Professor dipped them into a crucible of melted lead, and let the metal run off in the shape of bullets into a shallow cistern of water.

The Sun.

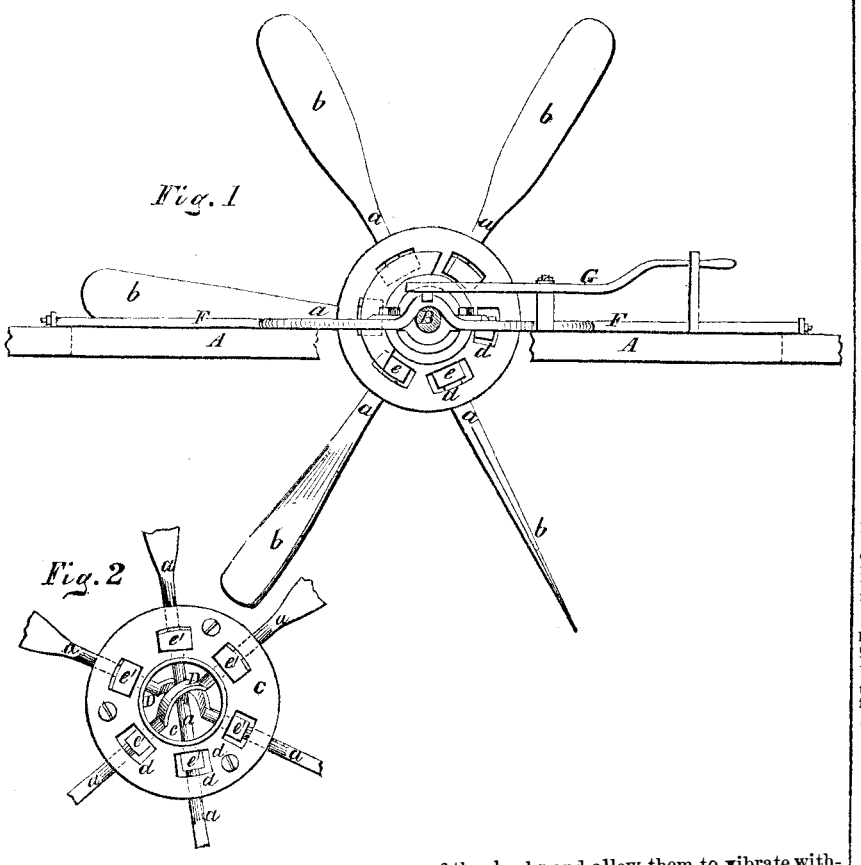
Sir David Brewster makes the following remarks relative to the structure of the sun: "So strong has been the belief that the sun cannot be a habitable world, that a scientific gentleman was pronounced by his medical attendant to be insane because he had sent a paper to the Royal Society, in which he maintained 'that the light of the sun proceeds from a dense and universal aurora which may afford ample light to the inhabitants of the surface beneath, and yet be at such a distance aloft as not to annoy them;' that 'there may be water and dry land there, hills and dales, rain and fair weather,' and 'that, as the light and the seasons must be eternal,' the 'sun may easily be conceived to be by far the most blissful habitation of the whole system.' In less than ten years after this apparently extravagant notion was considered a proof of insanity, it was maintained by Sir William Herschell as a rational and probable opinion, which might be deduced from his own observations on the structure of the sun."

Picking for Coal.

The Ohio river has been so low this season, especially on the bars opposite Cincinnati, exposing many coal boulders which had been quarried out and carried down by the floods in ages past and gone.

The *Gazette* says the bars that are now yielding so well have for years been covered with sand until this season. The floods of last winter have bared the treasure. Men are said to be making $10 per day taking out the boulders, quite as much as is made on the California placers.

FEATHERING PADDLE WHEELS.



On the 6th of last June, a patent was granted to Thomas and Samuel Champion, of the City of Washington, D. C., for an improvement in the construction of paddle wheels, represented in the accompanying engravings, of which fig. 1 is an elevation of the paddle wheel, and fig. 2 an elevation of the hub of the wheel, showing the construction of the shanks of the paddles, whereby they are arranged in the same transverse line and passed through the hub. Similar letters on both figures refer to like parts.

The nature of the invention, as stated in the patent, consists in the bowing or arching of the shanks within the interior of the hub, or so many of them as may be necessary, so as to secure the advantages of the solid or connected shanks through the hub, with the double blades standing at right angles with each other, and at the same time allow them to turn, to *feather* the blades, in connection with the compactness and utility of having the paddles all arranged in the same transverse line in the hub or socket flanges. It also consists in a guide for reversing the feathering of the paddles whenever the motion of the wheel is reversed by a very small movement in the direction of the shaft, instead of by turning the frame of the guides, (as has been done heretofore) around the wheel beyond the extremities of the blades. The object of arching the shanks of the paddles, is to enable them to be passed entirely through the hub and in the same transverse line, thereby greatly reducing the amount of turning and friction in feathering the blades, for when two blades are connected to the opposite extremity of the same shank at right angles, as represented, the motion and amount of friction in feathering the paddles, is one half less than when the paddles are arranged and connected to separate shanks which do not pass through the hub."

A represents the guard of the vessel on which the wheel is supported; B is the shaft of the wheel; C is the hub or socket flanges in which the shanks, *a*, of the blades, *b*, are confined. This hub has an opening, *c*, in its center for the purpose of receiving the bows of the shanks and allow them to vibrate within it, and other openings between the center and periphery to receive the projections, *e'*, on the shanks, and to turn in as they successively strike the shifting guide. This hub, C, is composed of two disks bolted together and mounted upon the end of the shaft, so that the shaft does not pass through the hub to interfere with the shanks of the blades; but in case it is found necessary, each of the disks may be mounted on the end of a separate shaft so as to leave the space in the center of the hub free to receive the shanks and allow the cranks to turn therein. In thus arranging the shanks through the hub, one of them must be straight and the others arched on opposite sides of the straight shank, as represented. D is the arched, bowed, or cranked part of the shank, whereby the shanks can pass through the hub, and embrace a straight shank, and turn on their axis without interfering with each other during the feathering of the paddles. There are guides for reversing the motion of the paddles when it is desirable to turn the wheel in an opposite direction by a short and convenient side motion of the guides; they are arranged on each side of the hub, C. F is the frame of the guides, extending from the guides beyond the circumference of the wheel and connected by bars at the ends beyond the paddles, so that when one is thrown in gear the other is thrown out, and vice versa. G is the lever for throwing the guides in or out of gear, to shift the paddles according to the direction of the turning of the wheel.

The patentees do not limit themselves to the precise arrangement of parts exhibited; their claims embrace two features in the construction of feathering paddle wheels, viz., the arching of one or more of the shanks of the paddles; and the method of shifting the guides by a side motion for the purpose mentioned.

More information may be obtained by letters addressed to Messrs. Champion, at Washington.

The Mirage in California.

Mr. C. D. Gibbons, writing from Tulare Lake to the *San Joaquin Republican*, says. We had frequent opportunities of observing the phenomenon in nature called mirage; when at eighteen miles distant, the lake would appear to be almost within a stone-throw, and had we not known the distance, might have been induced, during the exceedingly hot weather in the early part of July, to travel toward it to slake our burning thirst. Trees fifteen miles off would loom up so that they could be seen distinctly in their natural size and state, and immediately under, other trees but in an inverted position. We also observed horses walking along naturally and inverted.

LITERARY NOTICES.

Off-Hand Talkings; or Crayon Sketches of the most noticeable men of our age. By Geo. W. Bungay. Messrs. Dewitt & Davenport, 160 Nassau street, N. Y., have just issued a handsome volume bearing the above title: it is embellished with twenty portraits beautifully done on steel, among the conspicuous being those of Edward Everett, Sam Houston, John P. Hale, John Van Buren, E. H. Chapin, P. T. Barnum, Horace Greeley, S. A. Douglas, Thos. H. Benton, Ogden Hoffman, etc. The author gives his impressions of the "most noticeable men," without any regard to what others think of them. In this respect he exercises a right claimed by all writers, and that our readers may know his general preferences, we will state that he admires Horace Greeley and dislikes Stephen Arnold Douglas.

Hunter on the Diseases of the Throat and Lungs. This treatise enters very minutely into the discussion of lung diseases and of their treatment by inhaling medicated vapors, a system of practice successfully pursued by Dr. James Hunter, 828 Broadway. It is ably written and conveys with clearness a knowledge of this important subject. Of the peculiar system of practice which it introduces we cannot speak. It seems reasonable, however, that the inhalation of healing medicated vapors into the lungs must have a good effect, especially in asthmatical and bronchial difficulties. Stringer & Townsend, publishers, 222 Broadway.

Hall's Journal of Health—For September, is another excellent number, and contains some able "Observations on Cholera." This Journal is published monthly by Dr. Hall, at 37 Irving Place, N. Y. Terms, $1.
The Doctor is an able and very judicious writer upon all questions concerning his profession.

North British Review—The August number of this able Review has been promptly issued by its American publishers, Leonard Scott & Co., No. 79 Fulton street, this city. It contains nine original articles of great interest. There is one on Sir R. Murcheson's *Siluria*, which possesses a deep interest for geologists. The concluding is a solid article on the "Past and present political morality of British Statesmen."

Littell's Living Age—No. 537 of this excellent weekly periodical is filled with a choice selection of articles from the ablest foreign magazines and reviews. The first, on "Queen Elizabeth and her Favorites," is deeply interesting. Every number of this periodical contains a beautiful steel plate; this one is ornamented with "The Last Rose of Summer,"—a fine picture. The office is 343 Broadway, this city.

MECHANICS

Inventors, and Manufacturers

The Tenth Volume of the Scientific American commenced on the 16th of September. It is an ILLUSTRATED PERIODICAL, devoted chiefly to the promulgation of information relating to the various Mechanic and Chemic Arts, Industrial Manufactures, Agriculture, Patents, Inventions, Engineering, Millwork, and all interests which the light of PRACTICAL SCIENCE is calculated to advance.

Its general contents embrace notices of the LATEST AND BEST SCIENTIFIC, MECHANICAL, CHEMICAL, AND AGRICULTURAL DISCOVERIES,—with Editorial comments explaining their application notices of NEW PROCESSES in all branches of Manufactures; PRACTICAL HINTS on Machinery; information as to STEAM, and all processes to which it is applicable; also Mining, Millwrighting, Dyeing, and all arts involving CHEMICAL SCIENCE; Engineering, Architecture; comprehensive SCIENTIFIC MEMORANDA: Proceedings of Scientific Bodies; Accounts of Exhibitions,—together with news and information upon THOUSANDS OF OTHER SUBJECTS.

Reports of U. S. PATENTS granted are also published every week, including Official Copies of all the PATENT CLAIMS; these Claims are published in the Scientific American in advance of all other papers.

The Contributors to the Scientific American are among the MOST EMINENT scientific and practical men of the times. The Editorial Department is universally acknowledged to be conducted with GREAT ABILITY, and to be distinguished, not only for the excellence and truthfulness of its discussions, but for the fearlessness with which error is combated and false theories are exploded.

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